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ON COTTON SEEDS.

By Prof. F. A. Flückiger.

From an excellent monograph on this subject, reprinted from the June number of *N. Jahrb. f. Pharm.*, and communicated by the author, we make the following extracts:

Linnæus described five distinct cotton plants: *Gossypium arboreum*, *G. herbaceum*, *G. barbadense*, *G. hirsutum* and *G. religiosum*. Recently Parlatore, in his monograph, "Le Specie dei Cotoni," (Firenze, 1866, 64 pp. 4to., 6 folio plates) confirmed these species, and added two more from Polynesia—*G. sandvicense* and *G. taïtense*. The eighth species, *G. anomalum*, Wawra et Peyritsch (*G. senarense*, Fenzl,) belongs to tropical Africa.* All these plants are perennial; but only *G. religiosum* produces stout stems, about twenty-five feet in height; the stems of the others become woody, reach, however, barely a height of four meters, with a diameter of a few centimeters. When cultivated, they mostly become annual or biennial, and remain herbaceous.

The first two species in the above list belong to the hot countries of Asia, and were known in early history. The Florentine museum has capsules and seeds from ancient Egyptian sepulchres, which, according to Parlatore, are derived from *G. arboreum*. Theaphrastos,† in the fourth century before Christ, described a cotton plant. *G. barbadense*, *hirsutum* and *religiosum* originally inhabited the tropical

*Oliver, flora of tropical Africa, I, London, 1868, 211. *G. anomalum* is remarkable for the linear and entire parts of the epicalyx.

†Hist. plantar. 4, 7, 7.

parts of America, particularly Central America and the West Indies; the former is now most extensively cultivated in consequence of the excellence of its cotton. In the Southern States of North America it yields the valued Georgia, or Sea Island cotton; it is also cultivated in Western Africa, Egypt, East Indies and Australia. *G. hirsutum* is distributed to the same extent, and grows well in Southern Italy; the upland cotton, short staple, Siam, Castellamare, and Malta cotton comes from this species. *G. religiosum*, probably indigenous to Peru, requires a warmer climate, but is cultivated in some localities south of the Mediterranean. *G. herbaceum*, owing to the small capsule, gives a smaller yield; its purely white fibre, however, is better than that of *G. arboreum*, which yields the lowest grade of cotton. The species from Polynesia and Central Africa appear not to be cultivated yet.

Like all the extensively cultivated plants which are spread over a considerable area, we find in this genus numerous varieties which are distinguished with difficulty in consequence of the confusion existing in their nomenclature. Parlatore found, even in botanical gardens, varieties of *G. religiosum* under the name of *G. arboreum*.

The cotton fibres, which originate from the cells of the epidermis of the testa, are readily removed from the seeds of *G. barbadense;* they adhere more firmly in *G. anomalum, hirsutum, sandvicense* and *taitense*. *G. religiosum* has the spinning fibres not firm, but besides them, the testa has a brown reddish covering of short hairs. *G. arboreum* and *herbaceum* have seeds to which not only the cotton, but also the greenish or greyish felt-like covering firmly adhere.

The removal of the spinning fibres, by peculiar machines, without touching the felt cover, is accomplished with almost perfectness from *G. barbadense*, while, owing to the described structure, the cotton is rather torn off from the seeds of the other species. The excellence of the sea island cotton and some other varieties partly depends upon this difference.

The anatomical structure of the seeds is then minutely described and illustrated by microscopical drawings of sections of the testa and of a cotyledon.

The complicate contents of the large tannin cells in the cotyledons, containing also granules of a beautiful violet coloring matter, are dissolved by the oil, if this is expressed, and impart to the latter an unsightly brown color, even if the testa had been previously removed.

The cotton seed oil is of a mild taste, non-drying and congeals somewhat below 0° C. According to Slessor,* it consists mainly of olein and palmitin; the author, however, did not succeed to readily prove the presence of olein by testing with hyponitric acid.

For technical purposes, it ranks with benne seed and olive oil, provided it be obtained colorless or faintly yellow. It is exported in large quantities, partially purified, from England,† and from Marseilles‡ to Italy, whence it is re-exported as *olive oil.* 50,000 gallons of cotton seed oil were expressed in St. Louis, Mo., in 1868, and a factory in Providence, R. I. turns out a sweet golden yellow oil,§ the process of purification being kept secret; it is probable that the crude dark-brown oil is treated with lye, and a similar process appears to be in use in Marseilles. Heated with alkalies, insufficient for saponification, most of the color is removed, including the coloring matter mentioned before, which may, perhaps, be made available for dyeing.

Cotton seed oil, in its crude state, is colored purple by concentrated sulphuric acid, and if bichromate of potassa be added at the same time, blood red; potassa colors it yellowish, and in contact with the air finally bluish purple. After the first reaction, water will separate a matter which dissolves with beautiful colors, ranging between blue and red, in alcohol, chloroform, bisulphide of carbon, potassa, sulphuric acid and ether; if these colors could be fixed an excellent dye stuff would be gained. This body is probably formed by the splitting of a tannin; Kuhlmann‖ found in it 68·9 carbon and 8·2 hydrogen.

Nitric acid of spec. grav. 1·2 imparts to the purified oil a very faint yellowish color; a cold mixture of equal parts of nitric and sulphuric acid renders it red brown.

The yield in oil, aside from the species and from climatic influences, varies with the treatment of the seeds; the felt cover, amounting sometimes to 14 per cent. of the weight, if present during the expression, must retain considerable of the oil; 15—29 per cent. of oil have been obtained, and after the removal of the testa 31 to over 50 per cent. The economic value of cotton seed rests mainly in the fact that the oil may be obtained in enormous quantities as a by-product.

* *Jahresb. d. Chemie*, 1866, p. 366, Gmelin, Organ. Chem.
† *Dingler's Polytechn. Journ.*, 1865, p. 236.
‡ Authentic private information.
§ Sold under the name of salad oil.—M.
‖ *Jahresber. d. Chemie*, 1861, 944.

Calculated from the nitrogen found, the seeds contain about 23 per cent. and the kernels about 32 per cent. of protein compounds, showing the value of the press cakes as feed or manure.

From 3·7 to 6·78 per cent. of ashes have been obtained from the seeds, 2·33 per cent. from the testa, 4·3 to 8·9 from the kernels. The amount of water is 8 to 9 per cent.; of gum and sugar together 7·5 to 14 per cent. The seeds leave 25 per cent., the kernels only 7 per cent. of cellulose.

Though the use of the cotton fibre is of the highest antiquity, the oil of the seeds was not employed. It appears that the first suggestion for utilizing the oil emanated from the London Society for Encouragement of Arts and Science, in 1785, but, even in the United States, the oil was little known in 1856; very little of it is still made in Brazil, and the amount obtained in Marseilles from West African seeds is not considerable. London manufactures the most, from seeds imported from the Indies and North America; but the production is neither as extensive or as regular as it might be.

The annual production of cotton is estimated at over 1000 millions kilogrm., of which the United States produce about 600 millions kilogrm. The author obtained from two ripe capsules for 1000 parts cotton 2520 and 1730 parts seeds. Alcan, in his "Traité complet de la filature du coton," Paris, 1865, states that the proportion between cotton and seeds is very variable, but that in the mean four parts of crude cotton yield one part of spinning fibre, leaving three parts for the seed and offal, so that the annual production of seeds would be between 2000 and 3000 millions kilogrm. But if the cotton seeds are estimated only at 1000 millions kilogrm., there might be obtained at least, 150 millions kilogrm. of oil. In Marseilles, 100 kilogrm. of crude cotton seed oil are valued at 80 francs, the purified at 105 to 110 francs; the above quantity would therefore represent a value of 120 millions of francs. The 500 to 700 millions kilogrm. press cakes would probably have to be valued at 20 to 30 millions francs.

Though these figures may appear to be arbitrary, they serve, at least, to show how much remains to be done in the future for the proper utilization of these seeds.

J. M. M.

PHARMACY IN PRUSSIA AND IN THE GERMAN EMPIRE.

By Fred. Hoffmann, Ph. D.

(Concluded from page 342 of last number.)

Pharmacies and Pharmaceutists.

Up to the present time the opening of a new officine in Germany is dependent upon the concession of the government. Until the beginning of the present century, the King, afterwards the government, issued a grant (privilegium) which was permanent for the place, and could be ceded or sold to competent apothecaries. Latterly, instead of those grants, concessions have been issued which are permanent only under certain restrictions and not saleable without the consent of the government. Grants, as well as concessions, have always been made dependent upon actual necessity; hence, the number of officines in Germany, as compared with those countries in which the carrying on of every business is based upon the principle of free trade, is very small in proportion to the inhabitants. Though of late concessions have been granted with greater liberality, the average proportion of officines and population in the larger cities is approximately one for 7,000 to 10,000, and in the country one for 12,000 to 15,000 or more, inhabitants.

The value of these grants and concessions has for this reason been high from the beginning, and was in the course of time increased, in consequence of the increase of the population, wealth, consumption and value of real estate and of labor; and now, since more liberal ideas are prevailing in regard to industrial and economical affairs, this value has perhaps reached its maximum, from which possibly a reaction may take place.

The officines in Germany usually confine themselves to a purely medicinal business, that is to the compounding of prescriptions and the sale of medicinal articles; with the exception of those located in very small places, non-medicinal articles are not, or only to a very limited extent, kept. Recently, however, the sale of toilet and fancy articles and even of foreign proprietary articles has been introduced, particularly in large cities and in places located in the thoroughfares of travel and resort, but though tolerated, is looked upon with disfavor by the government. The "medicinal tax" is uniform and obligatory for the entire country, is altered and amended annually, in conformity with the fluctuations in the commercial value of the articles; it regulates the price of medicinal articles and their prepara-

tions and fixes the charges for all requisite labor, for vessels, etc.; hence the prices for medicines are uniform throughout the country, and must be strictly figured out in accordance with the "tax"; the charges in the sales of medicinal articles over the counter must not exceed the tax valuation. The price of an officine and the real estate thereto belonging* being high, only about one-fourth of it is mostly paid at the purchase, while the balance is secured by mortgages at 5 per cent. interest. In all cases, therefore, these interests of an unproportionately high capital burden the income of an officine, and the net gain is further kept low by the low tax prices.

The arrangements and conducting of officines in Germany differ in many respects from the usages in this country, although they vary in the different sections of the empire and are influenced by the size of the cities, of the establishments and by local characteristics. The stores have no show windows and no attractive outside show whatever, except the sign as "Apotheke," and frequently the name of the owner; they have, as the only conspicuous distinction, a symbolum, generally an eagle, lion, bear, swan, a crown, etc., which are in figures of natural size over the store door and in print on the labels of the store. The inside of the store is generally remarkable for the great number of bottles, porcelain vessels and drawers, for their strict alphabetical and systematic arrangement and for the neatness, cleanliness and perfect order of the entire establishment. There is a counter for dispensing and selling, but no show cases, show bottles nor anything similar, although the shelves, fixtures and the whole establishment are mostly as practical as rich and elegant; for the preparation of prescriptions one or more prescription counters with their own shelves containing the materials mostly used. They are separated from the admittance and insight of the public, behind which, as Mr. E. I. T. Agnew in a recently published paper† significantly remarks, "a number of silent and spectacled assistants dispense the prescriptions, given to them (in the larger establishments) by the first assistant, who re-

* With perhaps a few exceptions in the largest cities where pharmacies may be in a leased locality, the house or houses in which an officine is established with all pertainments and premises belonging thereto, and often with participation in municipal lands, are always included in the saleable estate of an officine.

† London Pharmaceutical Journal and Transactions. April 15, 1871, p. 821.

ceives the prescriptions from the public and returns them with the medicine.*

The Prussian Pharmacopœia is edited by authority and order of the government, the present one being the seventh of all its editions. The Ministry of Public Instruction and of Ecclesiastic and Medical affairs appoints a commission of experts for revising and publishing new editions. This commission, consisting of men regarded as authorities in the pharmaceutical and medical professions, usually requests the most prominent physicians and apothecaries throughout the country to suggest alterations, amendments or additions, which, after due and mature consideration, are framed into a draft which once more is submitted to the medical and pharmaceutical professions for the purpose of eliciting criticism and further emendation. This is followed by the final revision, which being accomplished, the work is submitted for approval to the Ministry and hereafter also to the Imperial Chancellory, when it is published and becomes authoritative for the entire country by virtue of a prefixed imperial order, which, together with the tables added after the text, contains the legal regulations in relation to the purchase and manufacture of pharmaceutical drugs and preparations, to the keeping, dispensing and the allowed maximum doses of the powerful medicines and poisons. If a physician prescribes a larger than the highest dose allowed according to the tables appended to the Pharmacopœia, he must upon the prescription add the mark (!) otherwise the apothecary is bound to send the prescription, before dispensing the medicine, to the prescriber for verification, or in cases of urgent necessity even to another physician for endorsement.

Poisons and powerful medicines must be kept in the store as well as in the stock-rooms, in separate places and closets. The poison closets, which are always locked, are provided with different compartments and contain also scales, mortars, pill-machines and other utensils requisite for dispensing, and used only in connection with medicines containing poisons. The labels on the poison closet, on the bottles and drawers are in red letters on white ground. The prescriptions containing poisons are also kept in the poison closet and are entered into the poison book. This arrangement and separation effectually guard against mistakes, as well as against carelessness in the hand-

* In Germany the prescriptions are legally the property of the patients or the persons who paid for them, and are invariably returned with the medicine, except when temporarily retained on account of non-payment.

ling, dispensing and use of poisons. Poisons for use in the arts and trades or for the extinction of vermin, are sold only to responsible adult persons known as such to the apothecary; the purchaser has to sign an acknowledgement stating the kind of poison, its quantity, for what to be used, by whom dispensed, and to share the responsibility in case of misuse or accident by his neglect. These receipts, like the prescriptions containing poisons, have to be entered into the poison journal, and together with the same have to be kept open to inspection at the visitations or at any time by the authorities.

The Prussian Pharmacopœia is published in the Latin language, all the articles being arranged alphabetically, and is characterized by precision and terseness, as well as by profoundness and accuracy, the result of the high standard and the individual accomplishment of its authorsas well as of the great care with which it has been consummated.

Besides the Pharmacopœia a compendium of unofficinal formulas, edited by two apothecaries in Berlin,* is in general use. The Pharmacopœia and, when requisite, this compendium, are the uncompromising authorities for preparing, keeping and dispensing all medicines, and the former must be in the possession of every apothecary, assistant and apprentice.

The apothecaries are obliged to prepare their pharmaceutical preparations and most of the pharmaceutical chemicals themselves, or, when the small extent of their business does not make this profitable, they have to buy them from other manufacturing apothecaries. They are, however, responsible for the goodness and quality of the entire stock of their establishments; therefore nearly every officine is provided with a more or less comprehensive laboratory, containing every convenience, reagents and utensils for practice or research. Small steam apparatus like the well known one of Beindorff are commonly used where heat is required as for decoctions, infusions, for distilling, evaporating, drying, etc. Where there are two or more assistants, they are engaged one for the store and the other for the laboratory; the former is termed "Receptarius," (prescription clerk) the latter "Defectarius;" for the sake of instruction in many places they change these respective occupations with each other monthly or quarterly. The apprentices generally work the first two years in the store and then share the labors in

* Præparata chemica et pharmaca composita in pharmacopœa Borussicæ non recepta, quæ in officinis borussicis usitata sunt. Ed. *Schacht* et *Laux*, Berlin.

the laboratory. Except in the largest cities, assistants as well as apprentices live and board with their employer; they frequently enjoy the rights and privileges as members of the family. Apprentices used to receive no salary except board, for which in former years they even paid a small compensation, either in money or by prolonged apprenticeship; recently, however, they receive towards the termination of their apprenticeship a small salary. Assistants receive board, and besides an annual salary of from 180 to 300 thalers; in large cities where they sometimes have to board themselves, they are compensated accordingly; their engagement is quarterly, with six weeks' notice in case of leave, on either part. It is customary that assistants have free every alternate Sunday and besides half a day each week; where there are several assistants in an officine they have frequently every alternate evening free. Apprentices have not quite as much time of their own, but, aside from their daily labor, they have sufficient time for private study and, during summer, for botanical excursions.

The keeping of a fountain and the sale of carbonic acid gas and mineral waters on draught in the store is forbidden; if the apothecary manufactures and sells them, he has to do it in a separate locality and by persons engaged for this branch of business.

The position of the apothecary in Germany differs from the one he holds in this country, smaller places excepted, in which he either cannot afford to engage an assistant, or is sometimes unable to obtain the services of one, the principal takes less part in the manual labors of the officine, except during the pressure of business or in the absence of the assistant; his private office, usually adjoining the store, is generally also his library and study. If two assistants cannot be kept, the principal attends also to the labors in the laboratory. His education and knowledge, his familiarity with technical and sanitary affairs and with common things, as well as his social position, make the apothecary the confidential adviser frequently applied to by the public, and make the apothecary's store in Germany, as Mr. Danl. C. Robbins so well-timed indicates, in his Drug Report of 1868,* as a desideratum also for this country—"a place for public advice and for correct information about all articles in daily use," and that without any charges. The apothecary is also the legitimate expert for the execution of chemical analyses for physicians, for the sanitary

* Proceedings of Amer. Pharmaceutical Association, Vol. XVI, page 291.

and police authorities, and in criminal cases for the courts. These engagements, the supervision and activity in the officine and laboratory, the instruction of the apprentices and the necessary attention to the pharmaceutical and general scientific literature, tax his time and ability, and require his mental and manual labor. Not unfrequently is he also elected to fill municipal and other offices, like those of trustee, juror, councilman, etc., which, in Germany, are positions of honor and trust, without any pecuniary compensation.

For these reasons and by virtue of the high standard of professional character and morals in trade and pursuit, the apothecary, like the physician, enjoys the consideration and regard of the public.

The relation between the apothecary and his assistants is that of colleagues based upon mutual esteem. "Since there are a great number of men who have passed the State's examination, but do not possess the means to buy a pharmacy, and have to wait years to obtain perhaps the concession for the establishment of a new one, and who, consequently, are obliged to serve as assistants, there is in German officines a staff of well-educated, experienced and pains-taking assistants. This fact contributes not a little to the high status of pharmacy and to the deserved regard and confidence which the pharmacist enjoys in Germany." (Agnew.) It also gives a clue to the cause why so many German pharmacists have emigrated* and established themselves in foreign countries with less restricted or free trade, mainly in Switzerland, Russia and the United States, and more or less in the Central and South American countries, and in the coast countries and islands of Asia and Africa. Although frequently separated by language and dialect, they generally win the satisfaction and respect of their employers and of the public, and are successful in their pursuit. "In Russia, according to Mr. Agnew's cited statement, by some extraordinary anomaly, German apothecaries are permitted to practice to the exclusion even of natives, unless they have been educated in a German University."†

* For some time past there has been considerable decrease in the emigration of German pharmaceutists to the United States.

† This statement is not quite correct, and may derive its erroneous origin in the fact, that comparatively a great number of apothecaries and most of the pharmaceutical professors at the universities in European Russia are Germans and that the latter lecture in the German language. It is also remarkable that the best and most widely distributed pharmaceutical journal of the Russian Empire is edited by Germans and published in the German language.

When pharmacists, educated in Germany and residing in foreign countries, especially in the United States, do not seem to possess this high moral and professional status, or when they apparently or really have renounced the same, it must be borne in mind, looking aside from mere pretenders or swindlers, that many emigrate quite young and long before their pharmaceutical education is completed, and that comparatively few are found among them who have accomplished their university studies and passed the State's examination; it must likewise be considered that the strife for existence and prosperity as well as the hardships of the stranger are severe and trying, and usually more so for the higher educated and accomplished minds.

In contrast to those colleagues who, having been born and educated here, are familiar with the customs and usages, with their country and people, the beginning of the emigrant, who is frequently without means and advising and helping friends, is wrought with many disappointments and adversities. It is a hard though necessary labor of his to acquaint himself with the language and customs, with the country and its people and their character; the harder for him who, having accomplished his pharmaceutical education in Germany, and having served there for a longer period as assistant, comes in his riper years into a new country, with new and to him strange customs, while he has parted from a position and social sphere which he cannot expect to find in countries where, influenced through unrestricted trade, the status of pharmacy and the social position of the pharmaceutist as well as the aims of the latter are usually less prominent and high. Such men, therefore, who shun vanity and have no favor for mere outward appearances and strive for gain as their main or sole aim, and who regard their education and maxims and their individual character in a higher light than mere articles of bargain and barter, such will often reach success only amid great difficulties which are increased and sorely felt, since confidence, independence and professional and social position are in Germany hereditary attributes of his vocation, while all these boons are secured here only through individual exertion.

SOLUBLE HYPOPHOSPHITE OF IRON.

By Rob. F. Fairthorne.

I find that when hypophosphite of iron is added to a concentrated solution of citrate of ammonia it readily dissolves after being heated,

forming a green solution. This, upon evaporation, leaves an olive colored salt in scales. I make it by the following formula:

℞.	Ferri hypophosphitis,	ʒvj
	Acidi Citrici,	ʒiv ℈ij
	Liq. Ammon. fort. q.s. ad sat.	

Pulverize the citric acid and saturate by addition of the ammonia. Mix the hypophosphite of iron with this in a flask and add ammonia until the mixture, which is of a yellow color, becomes dark olive, or until it is neutral to test paper. Pour this into a capsule and evaporate until it assumes a syrupy consistence, stirring to assist desiccation. Then set aside in a dry place until it solidifies. When quite hard break into small pieces and put into a bottle. As thus prepared, it has a pleasant slightly acid taste. It is very soluble in water and will be found an eligible preparation for dispensing in the form of syrup, elixir, or pill.

The above quantities produce one ounce and a half of the soluble hypophosphite of iron, and the preparation therefore contains 50 per cent. of the common hypophosphite.

ON SYRUPUS ASSAFŒTIDÆ.

By John M. Maisch.

Some years ago Mr. Rich. Peltz proposed a syrup of Assafœtida containing 15 grains of the gum resin in each fluid ounce, and which was intended as a permanent substitute for the officinal mistura assafœtidæ, which in the course of a few days usually spoils. During the prevalence of whooping cough, a few years ago, when assafœtida was often prescribed, I prepared a syrup, which was used by several physicians to their entire satisfaction, and which has kept well up to the present time. Instead of the boiling water used by Mr. Peltz, I have employed water at the ordinary temperature and added some orange flower water, which covers to some extent the odor of assafœtida, without masking it altogether.

Two drachms of selected tears of assafœtida are triturated with a sufficient quantity of water until three fluid ounces of emulsion have been obtained, to which half a fluid ounce of triple orange flower water is added, and afterwards six troy ounces of sugar, which is to be dissolved by agitation without the aid of heat. It is important to perfectly emulsionize the assafœtida with the small amount of water,

which, though more difficult than the preparation of lac assafœtidæ, is readily accomplished by judicious trituration with small quantities of the water, and the removal of the concentrated emulsion, before trituration is continued with another portion.

The syrup thus prepared is whitish opaque and separates, on long standing, a portion of the resin like cream, which on occasional exposure to the air acquires a pinkish hue and subsequently a deep pink color; it can be readily mixed with the syrup by agitation. The change in the color of the resin, of course, alters the appearance of the syrup in course of time, it becoming of a pinkish color after the separated resin has again been diffused in it. An officinal preparation similar to the one described, it appears to me, would be by far preferable to the milk, since it is permanent and affords an opportunity of combining assafœtida with other liquid medicines without much trouble.

SYRUPUS ASSAFŒTIDÆ COMPOSITUS.

By J. J. Rambo.

Editor of the American Journal of Pharmacy:

Allow me to call your attention to a formula for a syrup, I have for a number of years been in the habit of preparing, to obviate the great objection felt by most patients to the disagreeable smell and taste of assafœtida, and which has prevented to a great extent the more general use of this valuable drug. The formula I find to answer the purpose effectually, at the same time its medicinal qualities are enhanced by composition with syrup of wild cherry, possessing the valuable thereapeutic properties of both.

℞.	Infusi Pruni Virginianæ,	Oi.
	Assafœtidæ,	℥i.
	Sacch. Albi,	℥xxiv.
	Magnes. Carb.	ʒii.

Rub the assafœtida and magnesia with the infusion gradually added, so as to make a uniform mixture and filter; to this, transferred to a bottle, add the sugar and agitate occasionally until it is dissolved. As a result we have a handsome syrup which does not differ in appearance from the syrup of wild cherry.

The property possessed by the volatile oils of bitter almonds, cherry laurel leaves, bark of wild cherry, &c., containing hydrocyanic acid,

of removing the odor of assafœtida has long been known, and advantage taken of this property by M. Maheir, a French pharmaceutist, to remove the odor from mortars and bottles with which it came in contact; but I am unaware that the fact has ever been applied to its administration as a medical agent.

New York City, August 2d, 1871.

ACTION OF CARBOLIC ACID AND CREASOTE UPON THE ORGANISM.

By Dr. Th. Husemann.*

The author discusses the various physiological and toxicological observations made by medical men with the two chemicals, which, by chemists, physicians and pharmacists, have been frequently confounded. Dr. J. Ummethun has instituted comparative experiments upon frogs, pigeons, cats, rabbits and dogs, and from these and other observations the author arrives at the following conclusions:

1. Both creasote and carbolic acid exert a decided local and general action upon the animal organism.

2. The local effect of carbolic acid, undiluted or in concentrated solution, is more energetic than that of creasote; the former is caustic, while the latter merely causes irritation and inflammation. The influence upon the mucous membrane of the stomach and crop is more intense with the former.

3. The toxical effect of carbolic acid is likewise much stronger. Its lethal dose in subcutaneous injection was found to be 6 mgms. for frogs and 0·1 grm. for pigeons; and when given internally 0·45 grm. for rabbits, 0·5 grm. for cats and 2·5 grms. for medium sized dogs. The injection of creasote proved fatal only after doses of 0·03 grm. in frogs, 0·2 grm. in pigeons, and, when internally applied, rabbits and cats died after doses of 2·5 grms. and 60 drops. The smallest lethal doses to man of carbolic acid and creasote cannot, at present, be stated, because in most instances of poisoning by these substances excessively large quantities had been used.

4. The constitutional effects of both poisons are manifested by nervous disorders, but in a very different manner. Carbolic acid produces at first tremulousness, then spasms of such a severity as is

* Reprint from *N. Jahrbuch f. Pharmacie.* Communicated by the author, translated and condensed by the Editor.

observed only from few poisons (picrotoxin, codeia); they continue often for several hours, if the quantity of the poison was not excessive, and turn into palsy, which is followed by death. The symptoms of creasote poisoning are different; in the beginning, considerable uneasiness sets in, then remarkable symptoms of difficulty of breathing, in a short time followed by great prostration and paralysis, which often lasts for several hours before death ensues, but always without any signs of spasms. This difference in the toxical effects is so considerable that it alone is sufficient to remove all doubt about the non-identity of carbolic acid and creasote.

5. The post-mortem examination reveals two symptoms, which, in like manner, prove the distinction of the two substances.

The blood of animals poisoned by carbolic acid is always liquid, even if dissection has taken place a considerable time after death; this is one of the signs of death by suffocation, and in the case of carbolic acid, of poisoning produced by insufficient respiration, caused by the peculiar effects upon all the muscles. On the other hand, the blood of animals poisoned by creasote, is invariably characterized by an increase of its coagulability, so that, even if the dissection was undertaken immediately after death, the blood coagulated at once; tough and hard blood congelations were often observed in the heart and the larger veins, but never after death by carbolic acid.

Another peculiarity of creasote poisoning, not observed after carbolic acid, is found in the lungs where hardened circumscribed spots of larger or smaller dimensions are observed, while after carbolic acid poisoning usually shrinking and paleness of the lungs are seen, but nowhere signs of inflammation.

Undisputable cases of poisoning of men by creasote are so rare, and mostly so imperfectly described, that it is difficult to decide whether the symptoms and effects harmonize with the observations on mammals, and whether the same characteristic distinctions from acute poisoning by carbolic acid may be observed. The case of creasote poisoning described by Müller,* showed these effects.

There are cases on record where inflammation of the lungs was observed after death by carbolic acid. In the one related by Taylor,† the caustic effects and inflammation were doubtless caused by direct

* Württemb. Corresp. Bl., 1869, No. 42.

† Guy's Hosp. Rep., 3 Ser., xiii, 233.

contact of the acid with the respiratory organs. In the case described by Gavin P. Tennent,* where half an ounce of Calvert's carbolic acid No. 4 was taken by mistake, death occurring after a month, it cannot perhaps be solely attributed to the effect of the poison; moreover, it is not improbable that the impure carbolic acids of commerce may be variable mixtures of carbolic acid and creasote.

TESTING PETROLEUM.

By Professor Attfield.

In ascertaining the temperature to which a specimen of petroleum must be warmed before its vapor can be ignited, different experimenters obtain different results. The fact is this "flashing-point" varies according to circumstances; unless, therefore, two operators work under exactly similar conditions, their reports will not coincide. In the British Petroleum Act of 1868 somewhat minute directions for applying the flashing test to samples of petroleum are given in a schedule. As originally drawn up, those directions were supplied to the Government by Mr. Abel, Dr. Letheby and myself, and related to the testing of the liquid when contained in a three-inch half-filled cup. After they left our hands, they were made to apply to petroleum contained in a two-inch full cup; the protection from draughts afforded to the surface of the liquid by the upper part of the half-filled cup being substituted by that of a screen so placed round the full cup, that the efficiency of the original directions should not be affected. That is to say, a sample of petroleum flashing at 100° in the unscreened half-filled cup should flash at 100° in the screened full cup. This should be borne in mind by all persons testing petroleum, as the screen can be so constructed or so arranged as to cause flashing-points to be above or below the standard now given. Just before the Act passed, I pointed out to the Government that the alteration would lead to endless disputes, and was assured by letter (which I still possess) that the construction of the apparatus was only varied in a point of detail to meet an objection; that, in short, the screen was to be so efficiently disposed as not to interfere with the standard previously fixed. I may add that one year later (June 1869) in a Bill for consolidating and amending the Petroleum Acts of 1862 and 1868, this standard was maintained with the concurrence of the

* Glasgow Med. Journ., Novbr., 1870.

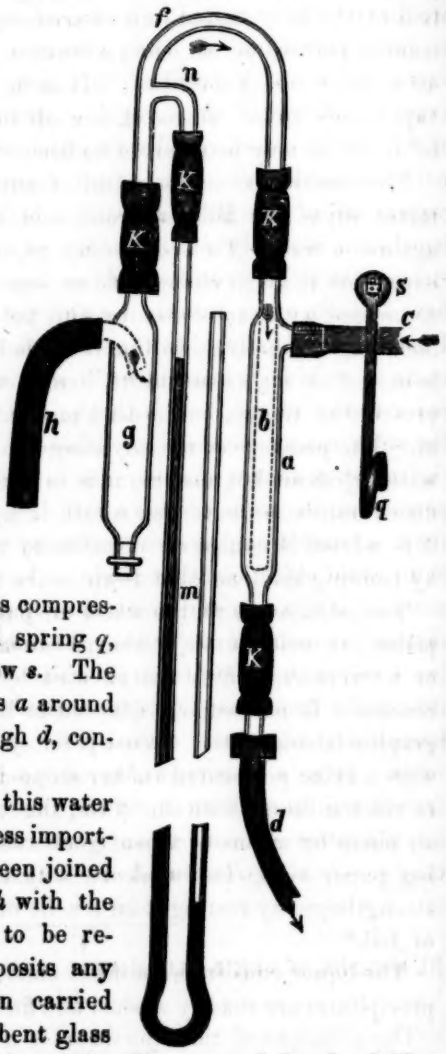
wholesale and retail petroleum traders, a *covered* screen (which gives results similar to those obtained in the half-filled cup) being directed to be employed. It is to be hoped that this standard, which has been accepted by all parties interested in the sale of mineral oils, will rigidly be adhered to in any attempt at further legislation respecting these liquids. In a Bill now (June 1871) before Parliament, the oils are directed to be tested in a *covered cup*, and the defining clause describes "petroleum" as being a certain liquid giving off inflammable vapor below 85° Fahrenheit. It is to be expected that this is the exact equivalent of the foregoing standard—that petroleum flashing at 85° in the closed vessel would flash at 100° in the open vessel. If not, one section or other of oil traders will probably prevent the maturation of the Bill; a result to be avoided if possible, for fresh legislation is sorely needed. My own testing apparatus is so constructed as to give results such as just indicated, results which I believe to be in exact accordance with the intentions of the Legislature. I may state, shortly, that this is a modification of what is known in trade as "Miles's instrument," with a screen five inches high; no cover to the screen, and with the front third of the smoke-holes of the outer casing permanently closed. The removal of the cover of the screen produces no difference in the flashing-point of a sample of petroleum, the walls of the screen being sufficiently high to protect the cup from draughts in an ordinary room; still I operate without it, to avoid objections that might be raised against the apparatus in a court of law, no special mention of a cover to the screen being made in the Petroleum Act (1868). I close up the front "smoke-holes" (as I called the holes through which escape the products of combustion of the flame that heats the water-bath), in order to avoid a slight inconstancy of results caused possibly by draughts from these apertures. Miles's instrument, as sold to the public, gives results which are close to those I obtain by the slight modification I have described, but the latter gives me those results with greater constancy and certainty.—*London Pharm. Jour.*, July 15, 1871.

BUNSEN'S WATER-AIR PUMP AND ITS USE FOR FILTERING LIQUIDS.

The principle of this apparatus is not a new one; it depends upon the action of the water, while falling, to carry air down with it, and

thus produce, under proper precautions, a partial vacuum. The water-blast, the mercury air-pump, and the pneumatic apparatus for conveying letters and packages from one place to another, are constructed upon the same principle, a partial vacuum being made by the fall of water or some other liquid.

The most convenient form of a water air-pump, adapted for chemical operations and for experiments in natural philosophy, is shown in the cut. *A* is a glass cylinder, to the upper part of which a narrower glass tube *b* is hermetically fused, so that its lower end reaches to near the narrowed portion of *a*, while the upper end is connected with the heavy gum tubing *k;* another gum tube connects *a* at the base with the lead pipe *d*. Near the top of *a* a short glass tube is inserted, to connect it with the water by means of the gum hose *c*, the flow of the water being regulated by more or less compressing the hose with the steel spring *q*, which is worked by the screw *s*. The water entering through *c*, fills *a* around the tube *b*, and runs off through *d*, continually sucking air out of *b*.



These are the main parts of this water air-pump, all others being of less importance. The apparatus having been joined by means of the gum tubing *h* with the vessel, from which the air is to be removed; the air enters *g*, deposits any moisture that may have been carried over, and passes through the bent glass tube *f* into *b*, from where it is continually removed by the falling

water. The reduction of pressure in the apparatus is ascertained by a manometer *m*, consisting of a bent glass tube containing mercury, and with a scale in centimeters on one arm, a piece of gum tubing connecting it with the tube *n*, joined into *f;* as the air is removed from the apparatus, the mercury must rise in the manometer, and by comparison with a good barometer hanging alongside, indicates the rarification of the air; suppose the barometer to show 720 m. m. and the manometer 680 m. m., the rarification of the air will be 720—680= 40 m. m. mercury column. If vessels containing ammoniacal or acid vapors are to be exhausted, a wash bottle containing sulphuric acid or an alkali may be inserted before *g*.

The apparatus is best made of strong glass; it is only about 1 meter high and 20 c.m. broad, and may be fastened upon a board against a wall. To avoid breakage, in consequence of the unequal expansion through change of temperature, the parts *b*, *f*, *g* and *m* are connected with each other by gum tubing, which must be very thick, including the hose *h;* with an outside diameter of 14 m. m., the bore is only 3 m. m., to avoid its being compressed through the outside pressure of the air. The lead pipe *d* has an inside diameter of 8 m. m. The pressure of the air being equal to the weight of a column of water of about 10½ meters, it is evident that a vacuum cannot be produced unless the water has a fall of not less than that distance, and it is advisable, whenever possible, to exceed that height, if necessary by running the lead pipe down to the bottom of a well.

The advantages of the water air-pump over others working with a piston are evident; it is cheap, automatic in its action, requires few or no repairs, and is not affected by corrosive vapors. For these reasons it is particularly adapted to filtration in chemical and photographic laboratories. To use it for such a purpose, a bottle is required with a twice perforated rubber stopper. One of the perforations receives the funnel with the filter, the other one is connected with the air-pump by means of a bent glass tube and the gum hose *h*. Filtering paper being too weak to withstand the pressure, the filter is strengthened by resting it on a cone of platinum bent out of one piece of foil.*

The liquor runs from the filter almost in a continuous stream. The precipitates are readily washed and finally obtained nearly dry. Bun-

*See also M. Tichborne's paper on page 313 of this Journal.

sen filtered, washed and dried two precipitates of a like quantity and quality, one in the ordinary way, the other with the water air-pump; the former required 7 hours, the latter 13 minutes; in another instance 15 hours and 32 minutes respectively were required. These figures speak for themselves. If it is also remembered, that evaporation and drying are accelerated in a rarified space, it is obvious that the apparatus described may be advantageously used for chemical laboratories for a great many operations.—*Jacobsen's Industrie Bl.*

ON THE SOURCE OF THE *RADIX GALANGÆ MINORIS* OF PHARMACOLOGISTS.

By Henry Fletcher Hance, Ph. D., &c.*

Whilst it is, I believe, fully established that the "Greater Galangal" is produced by *Alpinia Galanga*, L., the plant which yields the lesser kind has hitherto remained altogether doubtful, though some writers have hazarded the opinion that it is the rhizome of *A. chinensis*, Rosc. It is now more than twelve years since my attention was first drawn to the subject by my esteemed correspondent, Mr. Daniel Hanbury, who begged me, if possible, to set the question at rest.

I have never lost sight of Mr. Hanbury's wishes; but, although the drug forms a considerable article of export from Southern China,†

* Reprint from the Linnæan Society's Journal, xiii, communicated to the Amer. Journ. Pharm.

† Galangal is not used in British medical practice; and, even on the Continent, Endlicher speaks of it as "exoleti fere usus." The following statement of the export of this drug during the last three years is compiled from the official returns published by the Foreign Inspectorate of Maritime Customs, the quantities and value being, however, for greater convenience, reduced to British weight and currency:

Years.	From Canton.		From Shanghae.		Total.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£ s. d	lbs.	£ s. d.	lbs.	£ s. d.
1867	32,800	123 10 10	79,200	354 9 9	112,000	478 0 7
1868	15,233	57 10 0	162,308	1149 3 5	177,641	1206 13 5
1869	None		370,800	3046 16 9	370,800	3046 16 9

From this table it would appear that the demand for Galangal is increasing; but I cannot explain why the export of a product of the extreme south of China should be transferred from Canton (the nearest port) to Shanghae, situated 8° further north.

my want of success will not seem surprising when it is borne in mind that many vegetable products shipped from Canton come from distant parts of the empire, and pass through a number of hands before they reach those of the native merchants, and that these latter are quite incapable of comprehending the interest attaching to the solution of a doubtful scientific point, or of troubling themselves about what seem to them matters of aimless and puerile curiosity. Those who have tried know well how difficult it is to get reliable information from the natives, who will frequently invent answers, rather than seem ignorant, and are especially prone to reply in the affirmative to direct or leading questions, as if they supposed the object of an inquirer was rather to obtain the confirmation of his own views than to elicit the truth.

In November, 1867, I had the opportunity of making a visit—at the invitation of, and in company with, the Commissioner of Maritime Customs at Canton—to the Island of Haenan. During this excursion, and while at anchor off Pak-shá, a fishing-village on the south coast of Kwangtung, about seventeen miles from, and rather to the east of, Hoi-haú, on the north coast of Haenan, we landed, and some of the party went about six miles inland to a ruinous walled city named Hoi-on; but, being slightly indisposed, I preferred botanizing over the low hills near the coast. On their return, Mr. Sampson, who was one of the party, informed me that they had seen a large quantity of what he took for ginger (but which he described as bearing the inflorescence on the leafy stems) under cultivation; and another gentleman produced—asking if I knew what it was—some pieces of rhizome, of which quantities had been passed, exposed to the sun in shallow bamboo baskets to dry. This I immediately identified as Galangal; and as some inquiries made of a linguist who had accompanied them left no doubt that the rhizome belonged to the plant seen growing, I had the mortification of knowing that the true Galangal plant had been met with, and no specimens obtained, whilst our arrangements did not admit of further delay.

Fortunately, however, at the close of the year, another expedition to Haenan was planned; and on this occasion Mr. E. C. Taintor, an American gentleman in the service of the Imperial Customs, to whom I was indebted for the specimens of the Oaks on which the North Chinese wild silkworm is fed, respecting which I have already communicated a paper to the Society, accompanied it. Mr. Sampson took

great pains to indicate to Mr. Taintor the locality where the plant had been seen; and I am happy to say that Mr. Taintor's researches were crowned with complete success, he having brought back fine living plants with the rhizomes attached, an examination of which, and comparison with authentic specimens of the drug from Mr. Hanbury and others, procured here, leave no doubt whatever of the species being the true officinal one.

The following account from Mr. Taintor's notes will explain how he obtained the plant: "The locality is about one mile north of the small village of Tung-sai, situated upon the Bay of Pak-shá, at the southern extremity of the peninsula of Lui-chau-fú, or Lei-chau-fú, and directly opposite Hoi-haú, the port of Kiung-chau-fú in Haenan. The plant was growing at an elevation of about 100 feet above the level of the sea, in a very dry, hard, red soil, evidently composed of disintegrated volcanic rock. The plant grew in masses, which had been originally planted and cultivated, but were now apparently neglected and running to waste. The roots were in dense masses of sometimes more than one foot diameter, and with as many as twenty-five or thirty stalks springing from each. Rarely more than one or two of these stalks, however, bore flowers at the date of collection, January 5th. My plan, to insure that I was getting the real plant, was to write the two characters *Liang-kiang*, (*mild* or *gentle ginger*, the Chinese name), and tell an intelligent-looking villager that I wanted to see the flower. He led me, without the least hesitation, directly to the spot where I obtained the plants."

I must add that Mr. Swinhoe has since found the plant growing wild in dense jungle on the south coast of Haenan, one of his specimens being now before me, and that he has informed Mr. Hanbury, as I quite recently learnt from that gentleman, that there is a good reason for believing that its fruit is the *Bitter-seeded Cardamom*, figured in Mr. Hanbury's valuable paper* "On some rare kinds of Cardamom."

In endeavoring to determine the specimens collected by Mr. Taintor, I found in my herbarium, for the purpose of comparison, only the Hongkong species of *Alpinia*, and a few Moluccan ones, received from M. Teijsmann, of the Buitenzorg Garden; whilst, as regards books, I was restricted to Roxburgh's "Flora Indica," the writings of

* Pharm. Journ. xiv, 418, fig. 8.

Wight and Miquel, and the very useful "Prodromus Monographiæ Scitamineærum" of Prof. Horaninow, published at St. Petersburg in 1862. With these somewhat slender *adminicula*, I was soon satisfied that the Galangal was either referable or else very closely allied to *A. calcarata*, Rosc. (which Roxburgh states to have been introduced from China into the Calcutta garden); and though I found some discrepancies between the Kwangtung specimens and the description of *A. calcarata* drawn up from the living plant by Roxburgh,* whose accuracy is so well known, yet these were apparently so few and unimportant that my chief ground of hesitation as to their identity was the extreme improbability that the rhizome of a plant widely cultivated within the tropics, and growing and flowering luxuriantly in the Calcutta and also, according to Thwaites,† in the Peradenia garden, should have remained for so long a period unrecognized, if really the same as the Lesser Galangal of commerce.

It being evident that this question, of so much interest in itself, could not be solved with the means at hand, whilst an approximate judgment would be valueless, I determined to let the matter lie over until I had access to more complete materials.

Since then I have received, through the kindness of Mr. Hanbury, a sketch, with a single flower colored, of the plate of *A. calcarata*, given in Roscoe's "Scitamineæ," and a full-colored copy of that in the second volume of the "Botanical Register;" whilst my ever liberal friend, Dr. Thwaites, has sent me living rhizomes of the same species, whence have been reared fine healthy plants, though they have not as yet flowered, and, besides, copious specimens both of the flowering plant for the herbarium, and of the dried mature rhizomes. Mr. Taintor's Galangal plants have also again blossomed under culture, but set no fruit;‡ so that *fresh* flowering specimens of *A. calcarata*, and fruit of both species being alone wanting, I may claim to have had at my disposal as good materials for comparison as ordinarily fall to the lot of a descriptive botanist. I have, to the best of my ability, made a careful and exact comparative examination of living flowerless plants of each kind (including the rhizome), and of the mature rhizome of each; whilst I have compared the fresh and also

* Flora Indica, ed. Carey, vol. 1, p. 69.

† Enum. Pl. Zeyl. p. 320.

‡ Zingiberaceous plants, when under cultivation, even in localities where they are native, are far less disposed to fruit than the same species in a wild state, the flowers usually dropping off as soon as they fade.

the dried flowering plant of the Galangal with separate dried flowers, as well as herbarium specimens of the entire inflorescence of *A. calcarata*. The result is, that I am now entirely satisfied that the plant which furnishes the Lesser Galangal root is, though very closely allied to *Alpinia calcarata*, Roscoe, a perfectly distinct and well-defined species, the two differing in several particulars of structure, as well as in sensible qualities, as the following brief comparative notes will show:

Alpinia calcarata.

Dried mature rhizomes chestnut-brown,* conspicuously furrowed longitudinally; when cut across, with a stronger odor than Galangal, the cut surface remaining of a fuscous hue; of a bitter aromatic taste, much like cardamoms, with a distinct flavor of rhubarb superadded, but destitute of heat. Sheaths and bases of the young living stems or shoots more or less tinged with pink; tasting somewhat like rhubarb, but without any hot flavor. Leaves of a full deep green; aromatic, but not hot in taste. Ligulæ 3–6 lines long, rounded or truncate, and frequently bifid at apex. Racemes compound.‡ Flow-

Galangal.

Dried mature rhizomes externally rufous-brown, only very finely striated longitudinally; when cut across, surface becoming rufous; aromatic and very warm in taste, as if made up of ginger and pepper, with a recognizable camphoraceous flavor, leaving a powerful sensation of heat in the mouth when chewed.† Bases of young shoots white; tasting very warm. Leaves of a rather lighter green; hot in taste. Ligulæ 9–15 lines long, acutish. Racemes quite simple. Flowers without a bractlet. Labellum without the slightest trace of yellow, its veins very fine.

* Described by Roxburgh as somewhat wooly and pale-colored. Dr. Thwaites and myself find them perfectly smooth, both when young and at full growth. The young fresh rhizomes of both plants are quite white and succulent; but these can scarcely be alluded to: again, some dried rhizomes kindly supplied from the Calcutta garden are cinnamon-colored; but these are of small diameter, and evidently immature. The full-grown ones from Ceylon are, as described, of a chestnut hue externally.

† Cæsalpinus characterizes the rhizome very accurately, though briefly, as "subrufa intus et extra, sapore Piperis, modice odorata" (De Plant. lib. iv. c. 62).

‡ So described by Roxburgh, and so I find them in all Dr. Thwaites's specimens; but represented as simple in Wight's plate (Ic. Pl. Ind. Or. vi, 2028) and also apparently by Roscoe, and in the "Botanical Register."

ers with an oblong concave bractlet at their base.* Labellum "yellowish, minutely punctated with dull red, and with veins of a deep dull red color" (Thw.),† its veins thickish.

The fruits of both species, when known, may afford other marks of distinction.

A description of the Lesser Galangal plant, for which I propose the name of *Alpinia officinarum*, drawn up very carefully from living specimens, may fitly bring these notes to a close:

ALPINIA OFFICINARUM, n. sp. Rhizomatibus longe repentibus atque intertextis cylindraceis 6–9 lineas circiter diametro rufo-brunneis glaberrimis squamis magnis pallidioribus fibrosis demum secedentibus annulosque irrugulares sinuosos albidos relinquentibus copiose instructis, caulibus 2½–3½-pedalibus, foliis bifariis longe vaginantibus coriaceis glaberrimis nitidis anguste lanceolatis basi angustatis sed non petiolatis exquisite attenuatis 9–14 poll. longis medio 10–12 lin. latis ligula magna (9–15 lin. longa) oblonga scariosa erecta basi decurrente vaginas marginante apice acutiuscula auctis, racemo terminali simplici erecto densifloro brevi (plerumque haud 4-pollicari) foliis superato, rachi tenuiter tomentella, bracteis‡ spathaceis involucrantibus binis exteriore viridi nunc folio abbreviato coronata interiore alba ambabus demum extus stramineo-arefactis nitidis intra margineque scariosis cucullatis flore pluries longioribus vel simul

* Described by Roxburgh as "solitary, boat-shaped, white, 1-flowered," and shown in the Bot. Reg. plate, and also (so far as I can make out from the sketch) in that in Roscoe, but omitted in Wight's figure. Quite conspicuous in all Dr. Thwaites's specimens.

† Roxburgh describes the labellum as "deeply colored with dark purple veins on a yellow ground." The Bot. Reg. plate represents it as crimson in the centre, with a broad yellow border, into which veins from the centre run, though not very conspicuously; whilst my copy of Roscoe's figure gives an oblong yellow centre dotted with crimson, and a broader margin striated with red and yellow, the latter color slightly predominating. Considering the variation in color of the flowers of *Canna*, and the differences of shade and marking in the labella of many cultivated epiphytes of the allied order *Orchidaceæ*, it is perhaps unsafe to attach any considerable weight to a character of this kind.

‡ Though these exist equally in *A. calcarata*, it is curious that Roxburgh makes no allusion to them; he would have called the two an *involucre*. There is likewise no indication of them in the figures of the "Botanical Register," Roscoe, or Wight.

apicibus invicem convolutis basique solutis calyptratim secedentibus vel interiore paulo serius decidua, floribus abracteolatis arcte subsessilibus 15 lin. longis, perigonio exteriore albo tubuloso tomentello apice breviter 2–3-lobo lobis scariosis rotundatis ciliatis, perigonii interioris albi tubo extus intusque tomentello lobis oblongis obtusis cucullatis 8–11 lin. longis 2–2½ lin. latis tertio paululum majore et latiore, labello albo medio striis vinoso-rubris juxta apicem in maculam distinctam flabellatim dilatatis percurso aliisque pallidioribus a lineis medianis interioribus marginem versus pinnatim radiantibus elegantissime picto sessili ovato integro apice acutiusculo vel bilobo crispulo-eroso 10 lin. longo 8–9 lin. lato basi corniculis binis rigidulo-carnosis subulatis subreflexis 1–1½-linealibus pilis capitatis consitis basique glanduloso-incrassatis conniventibus tubum occludentibus aucto, stamine labello dimidio breviore, ovario densissime albo-tomentoso, stylo apice sensim dilatato paulo ultra antheram producto, stigmate concavo margine ciliato, glandulis epigynis ¾-linealibus luteolis oblongis apice truncatis integris vel lobulatis.

Habitat in interioribus insulæ Haenan; vix dubie etiam in silvis australiorum imperii Sinensis provinciarum, ubi commercii ergo large colitur (Exsicc. n. 16866).

British Vice-Consulate, Whampoa, Sept., 1870.

ENGLISH CHLOROFORM IN GERMANY.

By Dr. F. Versmann.

Many professors of German laboratories and proprietors of chemical works have adopted the valuable plan of communicating to the journals, from time to time, observations and points of practical experiences made in the course of their investigations; and it would be well if this plan was imitated here, as much labor and trouble may often be saved by this liberal exchange of practical information.

This arrangement, like everything good, is, however, not quite unalloyed, for it sometimes happens that statements are published which are of little use, or which, on examination, are found to be incorrect. The last is the case with a communication in a current number of Buchner's "Repertorium der Pharmacie," and as this special incorrectness bears on an English article, it may not be out of place to rectify it. Mr. E. Schering, in his practical communication, asserts that abroad English chloroform, sp. gr. 1485, is, for anæsthetic purposes, preferred to the German (the Prussian Pharmacopœia prescribes a specific gravity of 1500) because of its greater stability.

According to Mr. Schering, the presumption was natural that the English product had been obtained from chloral, and this idea was actually verified by Mr. Hager's investigation, who found it to be chloral chloroform with an addition of ·75 to ·80 per cent. of alcohol; but not a word is said as to the manner in which this result had been arrived at. Mr. Schering refers his readers to his price list of last year, in which he quotes chloral chloroform, and he informs them that he now keeps an article of sp. gr. 1485, identical with English, or, according to his own words, adulterated with alcohol.

Mr. Hager actually distinguishes the two preparations; he says, the chloral chloroform becomes slightly colored on addition of strong sulphuric acid, whereas the pure, obtained from hypochlorite of lime and alcohol, remains colorless.

Another difference is said to be, that ordinary chloroform, on being allowed to evaporate on a watch-glass, gives off, with the last few drops, a distinct foreign smell, indicating the presence of other chlorine compounds, which may be the cause of the ready decomposition of the chloroform when exposed to the light, and this is not the case with the product obtained in the new manner.

The manufacture of chloral in quantities and at a reasonable price, is of so recent a date that it is scarcely necessary to recall the fact that seldom, if ever, the supply of any chemical compound responded so readily to the demand, as with the chloral. The price of chloral hydrate was, at the commencement of last year, 112*s.* a pound; before the year was out it had gone down to 12*s.*, and it is now sold at 5*s.*, and even less.

Surely at this time when the hydrate commanded such high prices and the manufacture was in its infancy, no English manufacturer would have dreamt of converting chloral into chloroform, and with the present low prices and the high duty on alcohol, he is all but excluded from the market; it is well known that very nearly all chloral hydrate is imported from Germany, and I believe I am correct in stating that only two English firms do manufacture it in quantities.

Mr. Schering's whole argument necessarily falls to the ground, and for the best of reasons, the manufacture as assumed by him would never pay. It would perhaps have been wiser if he had prided himself upon the purity of his product instead of boasting of selling an adulterated article. His tests are of course worthless, because even less than 1 per cent. of alcohol will be sufficient to produce slight

coloration with sulphuric acid, but it is scarcely necessary to treat the matter as a chemical question.—*London Pharm. Journ.*, July 22, 1871.

CLEARING NUTS.

(*Strychnos potatorum.*)

By M. C. Cooke, M. A.

The clearing nuts of India* are the produce of a tree which is described as larger than that of the nux vomica. It is without thorns or tendrils; leaves very shortly petioled, elliptic, acute, glabrous, membranaceous, five- and almost penninerved; corymbs axillary, opposite, shorter than the leaf; corolla hirsute within; berry one-seeded; flowers greenish-yellow, fragrant. It is found on the Coromandel coast, the Concans and the western Ghauts, flowering in April.

The native names given by Moodeen Sheriff are,—*Nirmali*, Hindustani, Bengali and Gujerati; *Chilbinj*, Dukhni; *Tetran Kottai*, Tamul; *Chilla-gingalu*, Telugu; and *Tetran-parala*, Malayalim.

The fruit, says Ainslie, when very young, is made into a preserve and eaten, but is reckoned, in its mature state, amongst the emetics of the Tamul doctors of southern India, given in powder in the quantity of about half a teaspoonful. The dried seeds are used for the purpose of clearing muddy water, one of them being usually rubbed hard for a short time round the inside of the earthen pot; the water is afterwards poured into it, and left to settle. The impurities soon subsiding, the water will be found clear, tasteless, and wholesome. Roxburgh adds that the natives never drink clear well-water if they can get pond or river water, which is always more or less impure, according to circumstances. These seeds are therefore constantly carried about by the more provident part of our officers and soldiers in time of war, to enable them to purify their water. They are easier obtained than alum, and probably less hurtful.

The tree grows to a larger size than the nux vomica, and is not so common, being only found amongst mountains and woods of great extent, flowering during the hot season. The berry is shining, and black when ripe, containing only one seed, whereas that of nux vomica is many-seeded. (See Pharm. Journ. 1st. ser. Vol. IX.) Roxburgh says the wood is hard and durable, and is used for various eco-

*See also June number Amer. Jour. Pharm, page 241.

nomical purposes. The seed is broadly lenticular, about half an inch in diameter and a quarter of an inch in thickness; of a dirty whitish grey color, and covered with a thick coating of delicate appressed hairs. These hairs are in bundles of from three to six, agglutinated together longitudinally; but when separated each hair is seen to be a simple, pointed, cylindrical cell. To the naked eye, the surface of the seeds appears to be mealy rather than hairy.

The seeds in powder, mixed with honey, are applied to boils to hasten suppuration; also with milk in sore eyes. When used as an emetic in southern India, the seeds are given in powder. Dr. Kirkpatrick says that the seeds are employed as a remedy in diabetes; and they are mentioned in the Taleef Shereef as useful in gonorrhœa, etc. Their chief use, however, consists in their application to the clearing of muddy water.

It is not so much the seed as the pericarp that commends itself to our notice. The former is not employed medicinally, whilst the latter is in common use amongst the natives as an emetic.

The use of the fruit as an emetic seems to have been wholly confined to the native practitioners. It has been supposed that the reason why it has never acquired repute is the improper way in which it is administered. The whole fruit is generally powdered, and given in about half a teaspoonful doses. It is not surprising, therefore, that failure should take place, since the large seeds are not emetic, the dry pulp of the fruit and the pericarp alone possessing that property. If these are used separately, the result is said to be very satisfactory.

When sold separately, the emetic portion of the fruit is found in the bazaars in two conditions. In one condition it is in thin, scaly, and shell-like pieces, which are shining externally, and of a greenish- or yellowish-brown color. This is the pericarp removed when the fruit is dry. In the other condition it is formed together with the mucus into large balls or masses weighing about one pound. In this condition it contains a large quantity of dry mucus, and is much superior in action to the other form. Mr. Moodeen Sheriff states that the dry mucus appears to be more efficacious in dysentery than ipecacuanha.

The dose of the simple powder of the pericarp, prepared in the usual way, and kept in a stoppered bottle, is from 40 to 50 grains as an emetic, and from 15 to 30 in dysentery.—*London Pharm. Journ.*, July 15, 1871.

THE THEORY OF DISINFECTANTS.*

By T. P. Blunt, M.A., F.C.S.

The light which has recently been thrown upon the nature of contagion and infection by the labors of Pasteur and others, the results of which have been ably summarized by the President of the British Association in his late inaugural address at Liverpool, seems to point the way to clearer and more comprehensive views than those commonly entertained at present regarding the operation of the substances known as disinfectants.

These may be divided into two classes:—1. Those which act by the oxidation and total destruction of the virus contained in infected matters, together with the foul gases which usually accompany it, and which are, in fact, nature's danger-signals of its presence. 2. Those substances which do not possess the active chemical properties of the first class, yet are proved by experience to have a similar power of arresting and checking the spread of infection. The latter are, for the most part, the more ancient and popular, having apparently in some cases been suggested by a just but unreasoning instinct. Thus we find that the use of sulphurous acid, as evolved from burning sulphur, dates even from Homeric days; while the burning of pitch and aromatic gums for disinfectant purposes has an origin at least equally remote.

An attempt will be made, in the course of the observations which follow, to bring the operation of the large majority of the latter class under a general law which shall furnish us with an explanation of their true character. This is especially desirable, since it is to be feared that, for want of such an explanation, many good and valuable disinfectants have been condemned by chemists, on theoretical grounds, as mere deodorizers,—not assailing the virus of infected substances, but rather masking their poisonous character by precipitating their offensive gases. An objection to this view at once meets us, in the utter disproportion between the volume of the gases to be fixed and the quantity of salt practically found sufficient for the object required, while it breaks down altogether when applied to such disinfectants as the new "chlor-alum" or chloride of aluminium of Mr. John Gamgee, or the well-known carbolic acid. Before endeav-

* Read before the annual meeting of the Shropshire Scientific Branch of the British Medical Association.

oring to supply a more probable theory, it may be well to remind you that the researches already mentioned have established the fact that contagion and putrefaction, if not actually identical, are processes so closely allied that they require exactly similar conditions; the latter appearing to consist of a kind of disease propagated from particle to particle of a decomposing substance, and ending in its entire destruction. Hence it may be inferred with perfect safety, that any agent which arrests putrefaction is capable also of abolishing the properties of contagion and infection.

This conclusion at once puts into our hands a valuable instrument of research; for while it is difficult, and often impossible, to investigate directly the disinfectant action of a substance, the inquiry being surrounded by innumerable sources of error, the properties of an antiseptic are perfectly well defined and open to the clearest demonstration. Thus, in the case of the two bodies mentioned above, carbolic acid and chloride of aluminum, the antiseptic action of the first is well known, and has long been usefully applied; while that of the latter is maintained in the most positive manner by its introducer, Mr. John Gamgee, who certainly brings forward overwhelming proof of it in his recorded experiments upon meat and fish; and hence, on the ground given, we are justified in regarding these substances as good and useful disinfectants. It may be stated, in passing, that the deodorizing power which these and other similar bodies possess is probably due to their antiseptic action; the offensive gases of decomposition being sooner lost by diffusion, and their fresh production being entirely suspended.

Let us now proceed to a consideration of the origin of the remarkable properties which we have described. This appears to have been traced with some degree of probability, in the case of carbolic acid, by Dr. Joseph Hirsch, the writer of an article which appeared in the *Chemical News* about the end of February, 1869. He advances the bold and ingenious speculation, that the disinfectant action of that substance depends upon its power of coagulating albumen. He supposes that the acid finds its way into the minute organisms, which propagate disease by diffusion through their investing membrane; that it coagulates the albumen which they, in common with all germinal matter, contain as a necessary constituent; and thus practically destroys their vitality as perfectly as immersion in boiling water terminates that of an egg.

In order to test the accuracy of the view thus enunciated, I selected a substance of which the albumen-coagulating power was well known, and examined it with regard to its antiseptic, and, therefore, disinfectant properties. The substance chosen was nitro-muriatic acid, which has long been in use as a test for albumen in urine. The experiments were conducted as follows:

a. Two samples of fresh healthy urine, passed at the same time, each measuring about one ounce, were placed side by side. To one of them six drops of strong nitro-muriatic acid were added. In a few days, the unacidified specimen was covered with a thick crust of mould; while that to which the acid had been added was unaltered, except by a slight darkening of color and deposition of crystals of uric acid.

b. Some fresh meat was pounded into an emulsion with water,—the whole divided into two equal portions of about six drachms each. To one of them six drops of strong nitro-muriatic acid were added, as in the former case. In a day or two, the unacidified sample was quite putrid and offensive; while that to which the acid had been added retained the smell of fresh meat, and continues to do so still, after the lapse of nearly a month.

I now proceeded to test some of the salts commonly used as disinfectants, with respect to their possession of this power of coagulating albumen. The examination was conducted thus: One part of the salt to be tested was dissolved in one thousand parts of distilled water, and the solution was mixed thoroughly with the fresh white of egg. The salts examined were iron-alum, sesquichloride of iron, common alum, chloride of zinc and nitrate of lead. Coagulation followed immediately in every instance. In one or two cases the dilution was carried much further,—one part of the salt to three or four thousand of water. Here, too, coagulation followed in one or two seconds.

It may be remarked, in passing, that the hæmostatic action of the iron-salts is probably to be attributed in great measure to this faculty of coagulating albumen, exercised upon the serum of the blood.

The attempt to obtain similar results from the sulphites entirely failed. They appeared, indeed, to retard coagulation by other reagents. The coagulating power of sulphurous acid was faint and ill defined.

If we review the evidence now before us, we shall find that it stands thus:

We start with two assumptions,—the first justified by recent re-

search, the second borne out by analogy, viz., that infection results from the transference and development of minute germs; and that these germs contain albuminous matter as a necessary constituent, the coagulation of which terminates their existence. Upon these assumptions we frame our major premiss,—that "all coagulators of albumen are disinfectants;" and, having arrived at this result by a process of pure reasoning, we proceed to prove its truth by experiments upon the antiseptic, and so upon the disinfectant, properties of a well-known albumen-coagulator. Having thus established our fundamental proposition, we produce experimental proof of our minor premiss—that "nearly all the substances to which popular experience has assigned the property of arresting the spread of infectious diseases, where that power is at present unexplained, are coagulators of albumen." The conclusion then necessarily follows, that these substances are disinfectants; and thus a vindication of their efficiency is furnished in those cases where it has been called in question by chemists on the ground that no sufficient explanation of their action had been offered.

The above conclusion does not apply to sulphurous acid and the sulphites. In their case, we must probably look for some more remote physiological effect upon germinal existence.

Note on the Use of Hydrochloric Acid as an Antiseptic.

It is probable that hydrochloric acid, which shares the properties attributed to nitro-hydrochloric acid in the foregoing remarks, will be found to be a valuable preservative of animal food. A piece of meat, immersed for fifteen minutes in a mixture of one part of the acid to three of water, remained entirely free from putrefactive change after nearly a fortnight, though the action of the acid was not sufficiently powerful to prevent the appearance of a small quantity of mould. The meat was then immersed in a dilute solution of carbonate of soda, and the superficially absorbed acid was thus converted into common salt. This reaction obviously gives hydrochloric acid a great advantage over other antiseptics, which introduce into the food a foreign substance, inimical by its very nature, in most cases, to the process of digestion.—*London Pharm. Journ.*, July 22, 1871, from *The British Medical Journal.*

ON THE SOLUBILITY OF BISULPHIDE OF CARBON IN ALCOHOL.

By C. Tuchschmidt and O. Follenius.

The solubility of bisulphide of carbon in alcohol varies considerably with the temperature. The authors found that a solution saturated at 15° C., when cooled to —12°, separates about one-half; cooled to —10°, about one-third, and when cooled to +10°, about one-fifth of the bisulphide; while at ordinary temperatures above 15° C., the variation is slight. On adding bisulphide of carbon from a burette to alcohol, a strong milkiness is produced when one drop beyond the point of saturation is added. The authors used 10 c. c. alcohol of the percentage (by weight) indicated, and found it to dissolve the following quantities of bisulphide at 17° C.:

98·5	per ct.	saturated by	18·20 c. c.	21·37	per ct.	saturated by	5·00 c. c.
98.15	"	"	13·20 "	84·12	"	"	3·00 "
96·95	"	"	10·00 "	76·02	"	"	2·00 "
93·54	"	"	7·00 "	48 40	"	"	0·20 "
				45·90	"	"	0· "

Absolute alcohol dissolves the bisulphide in all proportions.

The authors give a formula for calculating the strength of alcohol from the solubility of bisulphide of carbon in it.—*Berichte d. d. Chem. Gesellsch. Berlin*, 1871, *No.* 11, 583—585.

ON THE INFLUENCE OF COFFEE AND CACAO ON ALIMENTATION.

By M. Rabuteau.

Two dogs were taken, as nearly as possible identical in size and condition, and one of these was fed every day with 20 grammes of bread, 10 grammes of fresh butter, and 10 grammes of sugar; the other with 20 grammes of cacao, 10 grammes of sugar, and an infusion of 20 grammes of roasted coffee. This last ration it is observed contained less solid matter, by weight, than the preceding. The first dog grew very thin in a short time, and died in twenty-nine days, showing all the symptoms of an insufficient nourishment. The other continued healthy, though he grew thin, but not so much so as the first dog. The experimenter having been called away to duty at the fortifications just after the first dog died, he was unable to feed the second

as he had purposed, and the animal, not receiving any nourishment, died at the end of four days. Remarks are made on the roasting of coffee. It should be so accomplished, that it shall contain all the caffeine, the true active principle of the berry, and should not contain caffeone, an essential oil developed in roasting. This latter principle the author asserts is the one which excites and causes the injurious effects so often found to arise from the use of coffee. Its formation may be to a considerable extent prevented by roasting the coffee in a current of heated air.

A discussion on the subject followed, in which it was questioned whether coffee and cacao were to be considered as aliments, M. Chevreul expressing his belief that personal idiosyncracies had much to do with it. He also remarks on the difficulty of settling the question, for want of a standard by which to be guided, as, for instance, the percentage of nitrogen, which, however, is fallacious.—*American Chemist, July*, 1871, from *Comptes Rendus.*

USE OF OSSEINE IN ALIMENTATION.

By M. E. Fremy.

The author discusses the question, whether osseine is a nutritive substance, which he considers has been decided affirmatively. He then describes the preparation—the chemicals which are to be applied with the greatest advantage; the cooking and the flavoring of the substance. He concludes by saying, 1st, that bones furnish nutriment under two forms—gelatine and osseine. 2d, the osseine should be prepared from bones well cleansed and freed from grease. 3d, in cooking, osseine changes to gelatine under the prolonged action of boiling water, in the same manner as the fibrous tissue of meat. 4th, gelatine is at present undeservedly in disfavor on account of the prejudices of the commission who have recently been appointed to examine into its claims to being a nutritious article. A discussion on the subject follows, in which it is stated that the commission on gelatine had decided that it was a modified form of animal product, and in so far as modified, was non-nutritious.—*American Chemist, July*, 1871, from *Comptes Rendus.*

Varieties.

A New Experiment.—The action of dilute sulphuric acid on starch is very neatly illustrated in a new experiment suggested by A. Vogel. It is well known that writing paper is so largely sized with starch that an iodine solution applied upon its surface will produce a blue color. Vogel traces first upon the paper some writing or figures with dilute sulphuric acid. The paper is then gently heated, but not sufficiently to char it. If now the iodine solution is applied, portions of the paper treated with the acid remain white, while the rest is blued. The same paper will serve repeatedly for the experiment, for the blue color gradually disappears.—*Journ. Frankl. Inst., August*, 1871.

Decoration of Metals.—Dr. Puscher recommends a solution composed of a mixture of 3 parts of hyposulphite of soda and 1 of acetate of lead, for the purpose of decorating metallic surfaces. When heated to about 100° C., this solution deposits a layer of sulphide of lead upon any metallic surface in contact with it—the effect of the peculiar color of the metal beneath being to produce a great variety of tint.—*Journ. Frankl, Inst., August*, 1871.

Gun-Cotton is now manufactured in England to an amount exceeding 100 tons per annum. The cotton fibre is reduced to a pulp, as in paper making, in which condition the excess of acids is readily removed. The pulp is compressed into disks, under a pressure of 18 tons to the inch, and then dried. These disks are $\frac{7}{8}$ inch to 7 inches in diameter, and $\frac{1}{2}$ inch to 2 inches thick. In the open air this compressed cotton burns intensely, but without explosion; but when properly exploded under close confinement, its strength is from 2 to 5 times that of the same weight of gunpowder. If accidentally wetted, this form of gun-cotton can be re-dried by exposure to the sun, or even by a gentle heat, without risk of explosion or deterioration.—*Journ. Frankl. Inst., August*, 1871.

Origin of Hail.—Prof. Reinsch* announces that it is impossible, in the present state of our knowledge, to proclaim a theory which shall satisfactorily explain the origin of this meteorological phenomenon.

Though it may be safely asserted that the conditions originating it are different from those producing the deposition of rain or snow, or that these conditions are more intense in character, yet a microscopic examination of hail proves that the conditions originating it are by no means always the same; for the structure of the product is rarely the same. He mentions the curious fact that in some hail which he examined beneath the microscope, there was found at the centre of the stones a spherical globule, which proved to be air. When these globules were nearly freed by the melting of their icy confinements, they burst the last portions of the shell with energy, and, expanding, occupied in a bubble form a space more than fifty times greater than when confined; showing that they had been subject to a pressure equivalent to more than fifty atmospheres.

* Pogg. Ann., CCXVIII, 623.

Cold may possibly have had some part in this diminution of volume; but the temperature necessary to produce so great a reduction in volume must have reached—214° C. at the point where the hail was formed—if cold had been the only cause in play. Whatever explanation we assign to this interesting observation, it must certainly be regarded as the most unexpected one which has yet appeared in the study of this puzzling phenomenon. Prof. R. recommends the diligent use of the microscope as the only means of solving the problem of the history of hail.—*Journ. Frankl. Inst., August*, 1871.

" *Waterproof Glue.*—Ordinary glue can be rendered insoluble in water by adding to the water, with which it is mixed when required for use, a small quantity of bichromate of potash, and exposing the articles to which it is applied to the light. Chromic acid has the property of rendering glue and gelatin insoluble, and, as the operation of heating the glue-pot is usually conducted in the light, no special exposure of the articles to which it is attached need be made. It is probable that paper could be rendered impervious to water by pasting the sheets with this prepared glue. The bichromate is said to render rubber particularly hard and unattackable by hot water. The chromated gelatin ought also to be tried on parchment paper, wood, leather, and cloth fabrics. The proportion of bichromate to be taken must be ascertained by experiment; for most purposes one-fiftieth of the amount of glue employed will be found to suffice,—that is, one pound of dry bichromate of potash to fifty pounds of dry glue.

" Many applications of waterproof glue will readily suggest themselves to our readers. The Albert photographic process is founded upon this property of gelatin, and billiards-balls, buttons, and ornaments are now largely made of chromated glue."—*Dental Cosmos, August*, 1871, from *Sci. Amer.*

Liquid Glues.—F. L. J., of Ark., states (*Ibid.*) that " an excellent liquid glue can be made by dissolving glue in nitric ether. The ether will only dissolve a certain amount of the glue; consequently there need be no fears of making the solution too thick. The glue thus made is about the consistency of molasses, and is doubly as tenacious as that made with hot water. If a few bits of india-rubber, cut into scraps the size of a buckshot, be added, and the solution allowed to stand a few days, being stirred frequently, it will be all the better, and will resist dampness twice as well as glue made with water. The best liquid glue that I have any knowledge of is made as follows: take of gum shellac, three parts; caoutchouc (india-rubber), one part, by weight. Dissolve the caoutchouc and shellac, in separate vessels, in ether free from alcohol, applying a gentle heat. When thoroughly dissolved, mix the two solutions, and keep in a bottle tightly stoppered. This glue is called marine glue, and resists the action of water, both hot and cold, and most of the acids and alkalies. Pieces of wood, leather, or other substances, joined together by it, will part at any other point than at the joint thus made. If the glue be thinned by the admixture of ether, and applied as a varnish to leather along the seams where it is sewed together, it renders the joint or seam water-tight, and almost impossi-

ble to separate. The natives of the Maldive and Laccadive Islands, and the Malays of the coasts of Borneo and Sumatra, have a glue which they make as follows: they take the scales of a kind of fish, called by English and American sailors salt-water trout (identical with the salt-water trout of the Gulf of Mexico), and, after thoroughly washing them, place them in a glazed earthen jar, which they stopper tightly, and weight so that it will remain under water. They put this jar in a pot of water, and boil it until the scales are reduced to a semi-transparent viscous mass. This requires several hours' boiling. Care should be taken that no water or extraneous matter, fluid or solid, be allowed to get into the jar with the scales. The glue thus made is the most tenacious, and, at the same time, the most transparent and beautiful that I have ever seen. I have made it in this country from the scales of perch, trout, and bass. I am informed that a similar glue is made from the bladders of various fishes." —*Dental Cosmos, August,* 1871.

On the Diseases of the Silk-worm.—Justus v. Liebig.—v. Liebig sees the cause of the silk-worm disease in the want of care given to the raising of the Mulberry tree, the soil in the old plantations being exhausted, cannot give the necessary nitrogen, and probably inorganic substances for the nourishment of the leaves, and these again fail to be a satisfactory food for the silk-worm. He criticises the French method, of separating the diseased eggs of the silk-worm from the healthy ones by means of the microscope, and is confident that this disease will soon disappear, if proper care is given to the raising of a healthy food.—*Amer. Chemist, July,* 1871.

How to Cure Stammering.—Since our profession do so little, practically, to relieve this trying infirmity, they must not take it amiss to receive a lesson from a layman who seems to have successfully grappled with and conquered the difficulty in his case. Practical facts are what we want, from whatever source they come.

Lute A. Taylor, editor of the La Crosse (Wis.) *Leader*, who has been an inveterate stammerer, writes as follows about the way to cure the habit: "No stammering person ever found any difficulty in singing. The reason of this is that by observing the measure of the music—by keeping time—the organs of speech are kept in such position that enunciation is easy. Apply the same rule to reading or speech, and the same result will follow. Let the stammerer take a sentence, say this one, 'Leander swam the Hellespont,' and pronounce it by syllables, scan it, keeping time with his finger, if necessary, letting each syllable occupy the same time, thus, Le—an—der—swam—the—Hel—les—pont, and he will not stammer. Let him pronounce slowly at first, then faster, but still keeping time with words instead of syllables, and he will be surprised to find that, by very little practice, he will read without stammering, and nearly as rapidly as persons ordinarily talk or read. Then practice this in reading and conversation until the habit is broken up. Perseverance and attention are all that is necessary to perform a perfect cure.—*Med. and Surg. Rep., July,* 1871.

Pharmaceutical Colleges and Associations.

The Massachusetts College of Pharmacy has elected the following named foreign pharmacists, honorary members of that College: Prof. Th. Redwood, Ph. D., Prof. John Attfield, Ph. D., Daniel Hanbury and Henry Deane, of London; Henry B. Brady, Newcastle-on-Tyne; Dr. H. Hager, Berlin; Prof. Dr. F. Mohr, Bonn; Dr. G. C. Wittstein, Munich; Prof. Dr. F. A. Flückiger, Bern; Prof. Dr. G. Dragendorff, Dorpat. In addition to the above, the following American pharmacists were honored with the same distinction: J. Faris Moore, Wm. Procter, Jr., I. J. Graham, J. M. Maisch and E. R. Squibb.

The *New Jersey Pharmaceutical Association*, at a meeting held at Long Branch, August 16th, passed the following resolutions, which were offered by Mr. James Stratton, of Bordentown:

Whereas, by an act of Congress, approved July 14th, 1870, the provisions of a former act were repealed, allowing the Apothecary or retail Druggist to sell Alcohol and Spirits for medicinal purposes, under a license of Ten Dollars; and, whereas by such repeal, a retail Druggist or Apothecary is now compelled, by act of July 30th, 1868, to take out a Retail Liquor Dealer's license the same as a Hotel, paying for it the sum of Twenty-Five Dollars, the same as an ordinary vender of ardent spirits for drinking purposes; therefore

1. *Be it Resolved*, By the New Jersey Pharmaceutical Association now assembled, that we deem the tax of $25.00, by the Internal Revenue Act, as oppressive and unjust upon a branch of the medical profession, who are obliged to dispense ardent spirits in various ways for medicinal purposes as well as for use in the arts; who have no desire or intention of selling it for drinking purposes or to make money out of its sale in that way.

2. *Resolved*, That we consider ourselves as well entitled to exemption from license tax as the Physician, the Dentist or the Lawyer, especially as we are reached by stamp tax on so many proprietary articles; but should it be demanded that we pay a license on account of the small amount of spirits we are obliged to dispense or use in our legitimate business, then we claim, as a simple act of justice, that the tax be $10.00 for an Apothecary's License to sell Alcohol and Spirits for medicinal purposes, which sum will be ample compensation for the benefits it confers.

3. *Resolved*, That a copy of these Resolutions, signed by the officers of this Association, be furnished to each of our Senators and Representatives in Congress, and that they be urged to secure the repeal of that portion of the Revenue Act bearing upon us, or at any rate that the tax be reduced to the amount named in the original law.

Maryland College of Pharmacy. In our notice of the annual meeting of this College, published in the July number of the Journal, we overlooked the following resolution, which is another evidence of the enlargement of the field of pharmaceutical education in this country:

Whereas, This College has long desired to establish a Chair of Botany in its School, in which it has been hindered because of no natural advantage to demonstrate the Science, and *whereas*, a Pharmaceutical education is incomplete without a theoretical and practical knowledge of Systematic Botany, therefore, *Resolved*, That the Maryland College of Pharmacy most respectfully petition the Mayor and City Council of Baltimore to appropriate a suitable

space of ground in one of the Public Parks, in which they establish a Botanical Garden, and that admission be granted to Botanical Classes for the study of Botany.

At the same meeting Mr. Joseph Roberts urged, besides the establishment of a chair on botany, also one on practical analysis.

The following delegates to the next meeting of the American Pharmaceutical Association were appointed: Dr. J. Faris Moore, Dr. J. H. Hancock, Dr. Louis Dohme, John A. Webb and J. Newport Potts.

The *Kansas College of Pharmacy* has appointed the following delegates to the next meeting of the American Pharmaceutical Association: Geo. Leis, of Lawrence; E. T. Porter, of Junction; J. W. Price, of Paola; R. Parham and Jos. Harrop, of Leavenworth.

The *Mississippi State Pharmaceutical Association*, we are informed, will be represented at the forthcoming meeting of the National Association. The organization of this body appears to have awakened a lively interest in pharmacial affairs in that State.

British Pharmaceutical Conference. The Annual Meeting of this body was held at Edinburgh, on the 1st, 2d and 3d days of August. After the delivery of the address by the President, Mr. W. W. Stoddart, and after the usual votes of thanks had been proposed and passed, the further business of the meeting was commenced by Professor Wright, of St. Mary's Hospital, reading a paper on Some Oxidation Products of Essential Oil of Orange Peel, and then giving an interesting account of the results obtained in his experiments on codeia. This investigation, connected with a material of great importance in pharmacy, has well served to illustrate how much the chemist's capacity of detecting differences has been developed in advance of his power of giving verbal expression to the differences he has made out to exist between substances. In a report on the chloral of trade, Mr. Mason expressed himself satisfied with the quality of this medicine, and Mr. Pattison Muir sent a paper on the same subject. The remaining papers read on Tuesday were "Pharmaceutical Notes on *Rhamnus Frangula*, Linn.," Mr. H. C. Baildon; "The Compound Iron Mixture of the British Pharmacopœia," Mr. C. A. Staples; "Report on the Purity of the Permanganate of Potassium of Pharmacy," Professor Allen, F.C.S. "On the Use of Blistering Flies in Hydrophobia," Henry Groves, Florence; "Solutions," T. B. Groves, F.C.S. Some account was also given of a new method of dealing with meat for the purpose of preservation, and Mr. Baildon described a new wire-guard for the protection of persons engaged in bottling aërated waters.

On Tuesday evening the Conversazione was held in the rooms of the Museum of Science and Art, at which about fourteen hundred ladies and gentlemen were present. Among the visitors was his Majesty, the Emperor of Brazil, who arrived about eleven o'clock. A selection of band and pipe music was performed by the band of the 93d Sutherland Highlanders, and during the evening photographic views of Scottish scenery and buildings were exhibited by the aid of the oxy-hydrogen light.

On Wednesday, the first two papers read were on "The Crystalline Principles in Aloes," one by Prof. Flückiger, the other by Messrs. T. and H. Smith. These papers gave rise to a lively and prolonged discussion. After these, papers were read by Mr. Greenish on "Linseed and Linseed Meal," and by Mr. Staples on "The Tincture Press." Another paper, by Professor Flückiger, was on "Wild Rue, *Semen harmalæ*," and a second paper by Mr. Staples was on "A Mode of obtaining Distilled Water."

Dr. Edwards then made some verbal remarks on cheap microscopes and apparatus. Following this, Mr. Atkins read a paper on "Pharmaceutical Ethics," which called forth remarks from the President, Mr. Schacht, Mr. Mackey, Mr. Deane, Dr. Edwards and other members of the Conference; others also desired to speak, but the time of closing the meeting having passed, it became necessary to take as read the papers on the "Preparation of Liquor Bismuthi," by Mr. C. H. Wood, and on "Pharmacopœial Nomenclature," by Mr. C. R. C. Tichborne, and proceed to the remaining business.

Unanimous votes of thanks were passed to the readers of papers and to the Edinburgh pharmacists for the efforts in organizing for the Meeting and for the hospitality shown and already in store for visitors to the Conference,—especially connecting with this vote the names of Mr. Mackay and Mr. Baildon.

The Meeting then proceeded to the election of officers. A letter from Mr. Reynolds, resigning the post of Secretary, was read, and called forth a lively expression of regret, which Professor Attfield was requested to express to Mr. Reynolds.

The following were then chosen office-bearers for the ensuing year:—

President—Mr. H. B. Brady.

Vice-Presidents—Messrs. H. Deane, D. Hanbury, W. W. Stoddart, R. Bentley, J. Ince, J. Williams, R. Reynolds and Savage.

Mr. F. B. Benger was elected General Secretary in place of Mr. Reynolds, and Mr. T. Glaisyer Local Secretary at Brighton.

The proceedings of this year's Meeting were brought to a close on Thursday evening by the usual Dinner, which was provided at the Royal Hotel. About eighty or ninety members dined together, the Executive Committee being the guests of the resident members.

The California Pharmaceutical Society, at its meeting held last month, elected the following gentlemen honorary members: Chas. A. Tufts, Dover, N. H.; Prof. Dr. E. R. Squibb, Brooklyn, N. Y.; Professor Edward Parrish, Philadelphia; Samuel M. Colcord and T. W. Metcalf, Boston.

The Executive Committee reported adversely to instituting a course of lectures, for the present, but requested the sense of the meeting upon various topics, such as a registry bill, training of apprentices, etc.

The meeting, after adopting the report of the Committee, referred various questions to them, with power to act.

The matter of closing stores on Sunday was postponed till the next meeting.

The Secretary presented correspondence, among which were printed copies of various "drug bills," as passed by the Legislatures of different States. The correspondence was ordered placed on file for future reference.

Much discussion ensued upon the subject of examination and registration of apothecaries, and the meeting resolved that any bill to be considered in the Legislature should be drawn and presented by a joint Committee of the California Medical Society and the California Pharmaceutical Society. The Chairman of the Examining Committee stated also, that the Committee were convinced of the necessity of asking an appropriation from the next State Legislature wherewith to establish a College of Pharmacy for San Francisco.

Mr. Parks presented a sample of California opium assaying over nine per cent. of morphia; and Mr. Steele exhibited various samples of elixirs, syrups, etc., made from formulas of the Newark Pharmaceutical Association, and published in the *American Journal of Pharmacy* and the Chicago *Pharmacist.*

The Chairman called the attention of the meeting to the next annual meeting of the American Pharmaceutical Association, to be held at St. Louis in September next.

It was resolved that the Executive Committee be instructed to appoint three members of the Society as delegates to the National Convention, and that the Secretary furnish them with the necessary credentials.

The German Apothecaries Society, Branch South Germany, will hold their annual meeting at Worms, September 7th and 8th.

Editorial Department.

Reduction of Fare for the Attendants at the Next Meeting of the American Pharmaceutical Association.—The Permanent Secretary has effected an arrangement with the Pennsylvania Central Railroad, to carry members and delegates and their families to St. Louis and back at the following rates: From Harrisburg, $25; from Baltimore, $26; from Philadelphia, $27; from New York, $30; and from Boston, $33, which is a reduction to nearly one-half the regular through fares. West of Pittsburg, members will have the choice of the following three routes to St. Louis, namely, via Columbus and Indianapolis, via Columbus and Cincinnati, and via Crestline and Indianapolis.

Tickets will be sold at the offices of the Pa. C. R. R. in the above cities only upon an order to be obtained from the Permanent Secretary, and *upon each order only one ticket will be sold.* The tickets will be good Westward from the 5th to the 12th of September, and the return tickets until September 25th.

Applications for orders, to receive attention, must reach the Permanent Secretary before Sept. 5th.

Situations for Students.—Mr. Wm. C. Bakes, who keeps for the Philadelphia College of Pharmacy a register of vacancies and of applicants for situations, informs us that a large number of young men have already registered their names, anxious to attend the lectures and to obtain employment during the unoccupied time. We call the attention of all pharmacists in the city and suburbs, who may be in need of help, to this announcement.

Accidents at Dr. Squibb's Laboratory.—Our readers will learn with deep regret of two serious accidents, the particulars of which are given in the following letter from Professor Procter:

Prof. John M. Maisch, *Editor of the American Journal of Pharmacy:*

It may be interesting to the readers of the Journal to know something of the details of the accidents which recently occurred in the laboratory of our friend, Dr. E. R. Squibb, of Brooklyn, one of which caused the death of one of his workmen, and the other a serious loss, by fire, two days after. On Thursday, Aug. 10th, one of his workmen, in changing a receiving flask into which carbolic acid was being distilled, broke the flask and scalded himself, not very badly, with the hot phenol. This was bad enough; but he managed to inspire the vapor in considerable quantity, with the result that in half an hour he was dead—despite all efforts to save him—probably from the profound anæsthetic effect of the vapor. He was a German, and leaves a wife and three small children.

On Saturday morning following this accident, whilst Dr. Squibb was at the Coroner's office, one of four 8-gallon flasks of carbolic acid broke over the fire, and let its contents into the iron sand-bath in which it was supported. This caused very rapid boiling, and large quantities of inflammable vapor were set free. Under the influence of the previous accident the men had not their usual presence of mind, and, in some unexplained way, managed to get this large column of vapor on fire. Subsequently, in applying water to this, the other flasks must have been broken, and thus increased the flame. Several important workmen were absent on vacations, and those who were present could not operate the special fire apparatus effectively. For this reason the flames soon reached the beams and rafters above, and were beyond their control. The fire department, however, soon got the fire under, before the roof was destroyed, but not until the timbers were seriously damaged. The space above, though not floored, was furnished with several platforms, on which valuable glass and other apparatus was stowed, and here the greatest loss was occasioned. The floor of the laboratory is supported on wrought iron joists, with intervening brick arches, and is paved throughout with flagstones in cement, with perfect drainage. The consequence was that not a pailful of water passed to, or a dollar's worth of damage was suffered by the stock, apparatus, etc., on the lower floors. About $800 worth of chloral, and $1500 worth of other material in process of manufacture were destroyed, and between two and three thousand dollars' worth of apparatus. The Fire Marshal roughly estimates the loss on the building at $2500, all covered by insurance, and the interruption to business will not be serious; but the loss of life is a source of great trouble to Dr. Squibb, who, with his son, had been the relief of this man at the carbolic acid retorts, and had both repeatedly changed the same flask that broke in his hand. The difficulty arose from the deceased having allowed the flask to get filled nearly up to its mouth before removal.

The assistant, who was not seriously injured, testified before the Coroner's Jury that they both jumped back instantly, letting go both flask and pitcher, and that he neither saw nor felt any vapor. For ten minutes after the accident no danger was apprehended by the deceased; the first signs being a feeling of intoxication and staggering, from which he was steadily prostrated down to death in half an hour. He had been engaged in chemical laboratories over eight years, and in his last place seven months, and knew the nature of his employment.

Stamp Duties on Perfumery.—The Internal Revenue Officers have heretofore interpreted the law so that imported perfumery in packages (of half or one dozen bottles) as originally put up by the manufacturers, could be sold un-

stamped. Recently, however, the Commissioner of Internal Revenue has decided that imported perfumery may be sold in the original or unbroken package, *as entered at the Custom House*, without being stamped, but when this original package is broken, and the smaller packages are taken therefrom, the bottles contained in the smaller packages must be stamped before they are sold or offered for sale. According to this decision the stamping will have to be done —as a rule—by the importer, and retailers are, henceforth, precluded from purchasing perfumery in the manufacturers' original packages, because they must be broken by the purchaser of the imported cases for the purpose of stamping each bottle.

We regard this decision as utterly erroneous, and not in accordance with the spirit of the Internal Revenue law. Only such packages of perfumery can be regarded as *original* packages, which conform to the style in which the manufacturer packs his goods for the convenience of the dealers. Such original manufacturers' packages may be and frequently are imported together with drugs and other goods in the same cases, and such cases cannot therefore be regarded as original packages of perfumery.

A few months ago, Internal Revenue Assessors and Detectives visited a number of pharmacies in Philadelphia, and induced the proprietors to stamp their shop bottles from which perfumery and toilet articles are retailed, equivalent to the stamp duty of the retail value of their contents. We now find in the newspapers the following decision of the Commissioner of Internal Revenue: "In regard to stamping a barrel or gallon bottle of Cologne water to retail from, the Commissioner says the law does not authorize such a practice. The law requires the stamp to be affixed to the bottle or other enclosure in which the article is sold and delivered, even though the bottle or enclosure may be furnished by the purchaser."

The law requires perfumery to be stamped in proportion to the full retail value of the vessel and its contents. We have heard of some wise officers who require the same value of stamps, even if the bottle or vessel be furnished by the purchaser; that is to say, supposing the purchaser to bring a fancy bottle, worth at retail three dollars, and to buy five cents' worth of Cologne water, they would have the seller stamp the bottle 14 cents, or, in other words, pay to the Government 14 cents for the privilege of selling 5 cents' worth of perfumery.

The ridiculousness of such a demand is so obvious that nothing further need be said about it; but the above cases show how vexatious the law may be to the honest dealer, and how little the officers themselves agree in their interpretation of it.

Importation of Powdered Drugs.—A few years ago a lot of rhubarb root was rejected at the New York Custom House as unfit for medicinal use. It appears that it was reshipped to Europe, powdered, and again sent to this country. It is well known how difficult it is to examine most powdered drugs and establish their purity by chemical assay or by the microscope, and it is a remarkable fact that powdered drugs which can be easily tested, particularly those containing alkaloids, are rarely if ever imported, while those the nature

of which offers opportunities for sophistication or deception, are frequently sent here, often done up in packages without any clue as to the maker's name, and consigned to parties not in the drug business. Such circumstances in themselves create suspicion, and if it is remembered that in this country we have ample facilities for powdering drugs, equal to those of European countries, it must certainly be conceded that there exists no necessity for importing drugs in a pulverized condition.

An attempt recently made to import a quantity of powdered drugs, evidently sophisticated, offered a good opportunity to bring this important subject to the notice of the Treasury, the movement being aided by a number of prominent importers, druggists, pharmacists and physicians. It is to be hoped that the Treasury regulations will be so altered as to exclude all powdered drugs, unless they be of such a nature that their quality can be easily determined.

Opposition to the New York Examining Law.—In a former issue we have freely criticised this law, and stated our objections to it. Up to the present time we have seen no reason to alter our opinion, which, on the contrary, has been confirmed by all the new developments, not the least of which is the table of examining fees, showing that the main object of the law is not solely the public welfare; in fact, it has been openly charged that the bill was passed for the purpose of procuring comfortable berths to a select few. If the father of the law, Mr. Irving, is really the politician and prize-fighter which he is depicted to be in the newspapers, his opposition to the bill offered by the New York College of Pharmacy is readily explained.

With the unreasonable features of the law, and the extravagant charges under its cover, it could not be otherwise; but regarded as a new chapter in black mail, and the opposition to it amongst the New York pharmacists is easily explained. This opposition grew to such an intensity that the Commissioners found it necessary to defend their action in the public press; but their effort does not appear to have convinced any one of the justness of such a law, the propriety of appointing a pharmaceutical board in such a manner, their right of disregarding all collegiate evidences of proficiency, or of the propriety to extort such fees.

Undoubtedly there are some arraigned in opposition to this law mainly in consequence of the fear that on examination they might be found wanting, but the best pharmacists of New York are endeavoring to contest it. They have formed an *Apothecaries' Union*, into which educated pharmacists only are admitted, and whose ultimate object appears to be to displace the present objectionable law by one containing the main features of the one which is in successful operation in Baltimore, coupled, perhaps, with some provisions of the Rhode Island law. They have our best wishes for their ultimate and complete success.

The Keeping and Dispensing of Poisons in Great Britain.—For some months past, our pharmaceutical brethern in Great Britian have been agitated on the above subject. The council of the Pharmaceutical Society had under consideration certain regulations, which, under the Pharmacy Act of 1868,

after having obtained the approval of the Society, were to become binding upon all registered pharmacists, chemists, and druggists in Great Britain. A violent opposition arose, based mainly upon the fact that dispensing surgeons were not included and could not, under the existing laws, be compelled to conform to these regulations; the interference with individual rights and the greater safety of the public under property educated pharmacists, were likewise among the arguments brought forward in opposition to the proposed measure. The pressure of this opposition was so strong that the council reconsidered its action, and instead of proposing the regulation as *compulsory*, made them merely *recommendatory*, and in this form they were subsequently adopted by the Pharmaceutical Society at the anniversary meeting held May 17th. In the meantime the president, Mr. Sanford, had resigned his position, because he considered the Society bound, by the Act of 1868, to propose compulsory regulations. The following are the recommendations by the Pharmaceutical Society of Great Britain for the keeping, dispensing and selling of poisons:

1. That in the keeping of poisons each bottle, vessel, box, or package containing a poison be labelled with the name of the article, and also with some distinctive mark indicating that it contains poison.

2. Also that in the keeping of poisons, each poison be kept on one or other of the following systems, viz.

(a) In a bottle or vessel tied over, capped, locked, or otherwise secured in a manner different from that in which bottles or vessels containing ordinary articles are secured in the same warehouse, shop, or dispensary; or

(b) In a bottle or vessel rendered distinguishable by touch from the bottles or vessels in which ordinary articles are kept in the same warehouse, shop, or dispensary; or

(c) In a bottle, vessel, box, or package kept in a room or cupboard set apart for dangerous articles.

3. That in the dispensing and selling of poisons all liniments, embrocations, and lotions containing poison be sent out in bottles rendered distinguishable by touch from ordinary medicine bottles, and that there also be affixed to each such bottle (in addition to the name of the article, and to any particular instructions for its use) a label giving notice that the contents of the bottle are not to be taken internally.

After the action of the Pharmaceutical Society in this matter had taken place, a bill was introduced into Parliament, entitled: An Act to amend the pharmacy act, 1868, in which all power to frame such regulations, is taken from the Society and placed into the hands of the council of the Society, and ultimately of the Privy Council. The section, as amended, is as follows:

2. The recited powers of the Pharmaceutical Society of Great Britian under the principal Act shall cease, and the Council of the said Society may from time to time submit to the Privy Council regulations as to the keeping, dispensing and selling of poisons within the meaning of the principal Act, and as to revoking or amending any such regulations previously made, and the Privy Council may, if they think fit, by order approve of such regulations.

If at any time it appear to the Privy Council that there are no regulations for the time being in force under the principal Act as to the keeping, dispensing and selling of poisons within the meaning of the principal Act, the Privy Council may serve a notice on the Council of the Pharmaceutical Society requiring them to frame and submit for the approval of the Privy Council regulations as to the matters aforesaid, and if the Council of the Pharmaceutical

Society, within the time limited by such notice, not being less than two months from the date of the service of the notice, make default in framing such regulations, or obtaining the approval of the Privy Council thereto, the Privy Council may themselves frame regulations as to the matters aforesaid.

All regulations approved or framed by the Privy Council in pursuance of this section shall have the same effect as regulations prescribed in manner specified in the principal Act.

New Exchanges.—Within several months we have been the recipient of a number of medical, technological and other journals with the request to place them upon our exchange list. We shall always be glad to comply with such propositions, whenever we shall find it to be to the interest of this journal and its numerous readers; or when the location of such publications may make it desirable. Our editorial friends must, however, bear in mind that our exchanges are already quite numerous, and to a considerable extent, comprise periodicals which rarely contain matter suitable for our columns. The failure on our part to exchange, will we trust, for these reasons, not be considered discourteous.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Plastics and Orthopedics. A report republished from the Transactions of the Illinois State Medical Society, for 1871. By David Prince, M.D. Jacksonville, Ill. 8vo. 56 pp.

The report, which is embellished by 38 illustrations, may also be obtained bound in connection with two previous reports, the whole published by Lindsay & Blakiston, Philadelphia.

Proceedings of the New Jersey Pharmaceutical Association at the first annual meeting, held in Trenton, N. J., February, 1871. Jersey City. 8vo., 16 pp.

In the absence of the President, Mr. C. H. Dalrymple, on account of illness, the first Vice-President, Dr. E. P. Nichols, presided, and in his annual address gave a short sketch of the organization of this body and of the efforts made to secure the passage of a law regulating the practice of pharmacy and the sale of poisons. In February last, the law was defeated in the Legislature for the second time; the Association, however, shows a commendable spirit to succeed, notwithstanding the obstacles raised by some legislators.

A Review of Darwin's Theory of the Origin and Development of Man. By James B. Hunter, M.D. Reprinted from the Journal of Psychological Medicine, July, 1871. New York. D. Appleton & Co. 8vo., 19 pp.

A very lucid review of Darwin's celebrated work.

The Physiological Action and Therapeutic Use of Chloral. By Dr. J. B. Andrews, M.D., Assistant Physician, New York State Lunatic Asylum. Reprinted from the American Journal of Insanity, July, 1871. Utica, N. Y. Roberts, printer. 8vo., 24 pp.

A condensed review of the observations on the action of this remedial agent, by numerous physicians, including the experience with it at the lunatic asylum. A number of pulse tracings are given, and cases are cited where the chloral

has proven injurious and fatal; in all these, however, we miss an inquiry into the purity of the chloral hydrate used.

Braithwaite's Retrospect of Practical Medicine and Surgery. Part LXIII, July. Uniform American Edition. New York. W. A. Townsend, publisher. 1871. 8vo., 307 pp. Price $2.50 a year.

The half-yearly Abstract of the Medical Sciences, being a digest of British and Continental Medicine, and of the Progress of Medicine and the Collateral Sciences. Edited by William Domett Stone, M.D. Vol. LIII. July, 1871. Philadelphia. Henry C. Lea. 8vo., 296 pp. Price $2.50 a year.

The above two publications contain the usual amount of information, systematically arranged for convenient reference.

Die literarischen Erscheinungen der letzten 5 Jahre 1866—70, *auf dem Gebiete der Medicin und Pharmacie.* Systematisch geordnet und mit einem Autoren Register versehen, von Eduard Baldamus u. Richardt Haupt. Leipzig. J. C. Hinrichs'sche Buchhandlung. 1871.

The medical and pharmaceutical literature during the last five years, 1866—1870; systematically arranged and with an index of authors. 8vo., 96 pages.

This catalogue, received from Messrs. Schæfer & Koradi, Philadelphia, enumerates all medical and pharmaceutical works and pamphlets from German publishers, arranged under 23 headings. During these five years about 150 different publications and new editions were issued by German booksellers on the subjects of Pharmacy, Pharmacology, Toxicology and Materia Medica.

OBITUARY.

Anselme Payen, born at Paris on the 6th of January, 1795, was educated at the polytechnic school at Paris, and afterwards devoted himself entirely to chemistry, studying under Vauquelin, Thénard and Chevreul. He had a large laboratory at the factory of his mother at Grenelle, which had been established by his deceased father in 1793 for the manufacture of sal-ammoniac, animal charcoal, &c., the decolorizing and disinfectant properties of the latter not being known at that time. Subsequently he established a second factory at Vaugirard, and there paid much attention to the purification of soda, the conversion of starch into sugar, and the preparation of borax from the boracic acid of the lakes of Toscana. Payen published several works on chemistry, on the manufacture of beer, of beetroot sugar, &c., and numerous memoirs from his pen, the fruit of his researches, have been published in the scientific journals. At the universal exposition in 1867 he was president of classes No. 70 and 71. He took an active part in the proceedings of the academy of medicine of which he was a prominent member, and attended the meeting of that body on the 9th of May. Three days later, on the 12th, an attack of apoplexy terminated his useful life, he being then in the 77th year of his age.

Corrections.—The sentence on page 352, line 9 from the top, should read as follows: When the ferrous chloride has filtered through, add sufficient hot syrup to the filter, until the filtrate measures four and one half fluid ounces, and then test a small quantity, &c.

Also on same page, line 12 from top, read: Into a four ounce vial, instead of vials.